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ABSTRACT

A study analyzed the worth of one traditional craft, Zimbabwean stone sculpture, in terms of its educational and employment values. The study was prompted by general attitudes that tend to equate "good" education with education that is modeled on Western industrial technology, whereas traditional education, which includes crafts practiced by African communities, is regarded as backward and educationally worthless. Data were collected from practicing sculptors and sculpture marketing organizations in Zimbabwe, through questionnaires, interviews with 12 sculptors, observations, and documents. Findings showed that stone sculpture contains good educational values in terms of knowledge, skills, and attitudes. These findings were determined by using Bloom's hierarchical structure of educational objectives, involving the cognitive, psychomotor, and affective domains. The employment values of the craft were found to be limited and questionable. An analysis of the availability of sculpting stones in the country, of marketing trends for sculpture, and of the costs for setting up and running workshops showed that the craft has doubtful employment opportunities. The limited employment values of the craft do not merit its inclusion in school curricula as a separate subject, but its worthwhile educational values certainly warrant it being included as a part of an existing subject. (Document includes 50 references and questionnaire and interview forms.) (Author/KC)

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The educational worth of Zimbabwean stone sculpture

Daniel Moyo

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THE EDUCATIONAL WORTH OF ZIMBABWEAN STONE SCULPTURE

Daniel Moyo

DISSERTATION
submitted as partial fulfilment for an
MA DEGREE IN METALWORK EDUCATION

LINKÖPING UNIVERSITY
Department of Education and Psychology
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We tend to equate 'good' education with education that is modelled on Western industrial technology. Traditional education which includes crafts practised by African communities, is regarded as backward and educationally worthless.

This study analyses the worth of one traditional craft, Zimbabwean stone sculpture, in terms of its educational and employment values.

The findings are based on data collected from practising sculptors and sculpture marketing organizations in Zimbabwe, through questionnaires, interviews, observations and documents.

Findings show that stone sculpture contains good educational values in terms of knowledge, skills and attitudes. These findings are arrived at by using Bloom´s hierarchical structure of educational objectives, involving the cognitive, psychomotor and affective domains. The employment values of the craft have been found limited and questionable. An analysis of the availability of sculpting stones in the country, of marketing trends for sculptures, and of the costs for setting up and running workshops, shows that the craft has doubtful employment opportunities.

The limited employment values of the craft do not merit its inclusion in the schools' curricula as a separate subject, but its worthwhile educational values certainly warrant it being included as a part of an existing subject.

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FOREWORD

This Master of Arts dissertation was prepared within the framework of a bilateral cooperation project between Sweden and Zimbabwe. The Swedish International Development Authority - SIDA - provided financial support for the project.

Linköping University has been responsible for the education in cooperation with the University of Gothenburg. Fifteen students participated in the programme. Three students completed the main part of their education at University of Gothenburg. Twelve students completed their education at Linköping University.

For the twelve Linköping University students, the Department of Crafts and Design held the major responsibility for the courses. The exceptions being the course in research methodology and the actual preparation of the dissertations where the Department of Education and Psychology was responsible. Facilities for the fieldwork were provided by the University of Zimbabwe.

The Department of Crafts and Design has been the host department and responsible for the administration and coordination of the programme.

Linköping May 16, 1989

Bengt Wetterstrand
Head of Department
Dept of Crafts and Design

Lars Owe Dahlgren
Professor and Examiner
Dept of Education and Psychology

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The researcher is deeply indebted to his supervisor, Ms. Runa Patel, Department of Education and Psychology, Linköping University, who dedicated her time and patiently advised him during the writing of the study.

Finally, special thanks also go to all those who have contributed to the successful completion of the study.

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BACKGROUND AND PURPOSE OF THE STUDY

Introduction

This is a study on traditional handicrafts in Zimbabwe, particularly stone sculpture. There are a number of factors which motivated the researcher to carry out the study. The first was that the massive growth of the educational system in Zimbabwe has led to problems such as inadequate learning materials and tutorial facilities in schools. The second is that there is a lack of job opportunities for school leavers in the country. The third reason is that in the Zimbabwean society of today, it seems as if traditional crafts are not given the respect which they deserve.

Crafts like mat-making, basketry, wood carving and sculpting have been practised in Zimbabwe from time immemorial. They can therefore be regarded as a part of the country's culture.

During the dry season, that is between June and September, there is not much agricultural activity going on in rural areas. This is the time of the year when traditional crafts are an important social activity in almost every home. The crafts then become the mainstay of communal life amongst fables, folklores and so on. Today however, it is the old, not the young, who practise these skills. In fact, the young tend to look down on them yet ironically, fees to send these young people to school could come solely from the sale of such crafts. Schools today also rarely offer any of these traditional skills to students.

The researcher has visited schools in Zimbabwe on countless occasions. In almost every school visited, there are problems of equipment supply, such as tools and machinery, especially in practical subjects like metalwork, woodwork, technical drawing and home economics. There is also an additional problem, that of the shortage of teaching materials. Such teaching materials may not be available in the country. Foreign currency is therefore required to obtain the materials from developed countries. As a result, technical subjects become a lot more expensive to offer than academic subjects. Yet the main aim of technical courses is to enable students, especially those who may not proceed to higher education, to acquire basic skills which will help them to find jobs after school.

There was massive educational expansion in Zimbabwe soon after independence. Primary school enrolments in 1985 trebled those of 1979. These enrolments were expected to increase every year for the following 5 or so years. These primary school enrolments had a ripple effect on second and higher levels of education. Table 1 shows the extent to which the educational system in Zimbabwe expanded from independence to 1982 and 1985.

Table 1. 1979 and 1985 School enrolments by level of education.

LEVEL	1979	1980	1981	1982	1985	% INCR
Primary	819 586	1 235 994	1 715 169	1 934 614	2 500 000	205.
Secondary	66 215	74 321	74 869	224 609	422 584	539
Tr. Colleges	2 249	2 829	3 610	4 873	17 000	656.
University	1 481	1 873	2 525	3 091	5 000	238.

(Chikombah, 1988, p.12).

In 1980, there were 74 321 pupils in secondary schools. Out of those, 6 135 proceeded into higher education in 1981, only 8% of the total. In 1981, there were 74 869 pupils at this level. Out of those, 7 964 proceeded into higher education in 1982, only 11% of the total. The percentage of those who proceeded into tertiary institutions, as is demonstrated by these figures, is small. One wonders if all the pupils who did not make it into higher education managed to get some form of employment in the formal sector of the economy.

Amidst the fears of what would happen to school leavers, some local light metal and clothing firms started winding down their businesses in 1984. A lot of workers were rentrenched in the process. The local industry served as the only way for keeping school leavers off the streets. When it started closing, one wondered what work the young school leavers would do for survival.

Purpose of the study.

It is curious that traditional crafts were not integrated into the schools curricula in the country. Do they have any educational values in terms of knowledge, skills and attitudes? If these crafts were taught in schools, would this help school leavers to enter organised small scale industry or self-employment?

Significance of the study.

This study will be of significance in more than one respect. Firstly, the researcher believes that there is very little known about traditional crafts practised by indigenous communities in Zimbabwe. This is partly due to the fact that the development of any country is measured in terms of its industrial progress and indigenous skills are ignored in the process. However these skills, which indicate a certain level of social development within a cultural group, have existed in the country from time immemorial. This study will therefore contribute to the general knowledge and understanding of Zimbabwean traditional crafts.

Secondly, owing to the neglect of cultural skills in favour of western forms of development, indigenous communities have lost their self-confidence and regard their own culture, life styles and traditional solutions as backward. This study will aim at restoring the confidence of these communities by demonstrating essential values latent in the crafts they practise and expose those that could be relevant to modern educational needs.

Thirdly, it is also realised that traditional skills have cultural values that give character to any country. However, these cultural skills are playing second fiddle to modern technology in Zimbabwe. As a result, the skills are no longer being passed from the old to the young as a matter of course. The young also resist the mere act of performing the skills. This study may draw the attention of policy makers to the need of making it possible for the young to re-visit the skills with a view of resuscitating them, in addition to utilising from them what may suit the present socio-economic situation.

It is also the researcher's opinion that indepth studies of traditional crafts are necessary. This type of study may therefore inspire other studies on this and other traditional crafts in the country.

The researcher also hopes that the analysis of a craft in order to determine its educational worth will serve as a basic structure for studies of other subjects which may be considered for inclusion into the curriculum of schools.

1. TRADITIONAL CRAFTS, THE SCHOOL AND THE CURRICULUM

There is a common argument from literature that before the 1960's, colonised groups aspiring to jobs and positions like those held by Europeans in a colonial society, sought an education similar to that enjoyed by members of the elite. Many colonised people felt that efforts to gear their educational systems to the traditional and/or rural society, as in the Phelps-Stocks reports, were means of perpetuating the inferior status of their race (Lillis,1982). Attempts were therefore made to model as closely as possible western forms of education. These are linked to factors like excellent occupational recruitment, high social status and comfortable material well-being. Lillis (1982) observes that even after independence, there is an obvious degree of inheritance from the colonial period in the education systems of politically independent countries. Varghese (1988, p.117) also states *that the arrival of the British in India, not only destroyed the existing crafts, but eliminated the potential for developing any such crafts into indigenous technologies.*

This state of affairs where independent countries follow heart and soul colonial models of education has led them to a state of technological and material dependence on western countries at the expense of striking a balance between 'imported' technologies and local crafts. This view is supported by Chikombah (1988, p.41) who states that *in Zimbabwe, in most subject areas, subject content has been designed with a flavour very different in its cultural and economic background, and not only that, it is in many cases drastically out of date.* Under these circumstances, one would advocate for a change in the content of syllabi to include elements of traditional subjects, which may complement the 'imported' technologies and create a growth for the local education system that would suit local conditions.

Traditional crafts in Zimbabwe are in fact practised to varying degrees by what may be regarded as the informal sector of the economy. It can therefore be argued that as a result, the crafts have remained static. They have undergone only a horizontal spread rather than a vertical integration which could lead to a local traditional 'technological' innovation and provide school leavers with alternative forms of employment, eg. self-employment.

1.1 Influences from developed countries

The world wide phenomenon of unemployment, especially of school leavers, is well known. The situation is even bleaker in African countries given the general deterioration of the economic situation which is primarily caused by events and conditions beyond the control of African governments

(Hulton,1985). In addition to the prevailing economic conditions, industrial growth in the same countries is slow or non-existent (La Belle, 1986). The few industries that exist only transfer consumer preferences to Africa of goods made in industrial nations. The goods are aimed apparently at a fraction of the population and are identical to those made in the west. King (1977) observes that little attempt is made at adopting the products to local conditions, since the internationally respected 'brand image' of a product is more important than substantial local content. One can therefore argue that this situation exacerbates unemployment. It would appear that no serious consideration has been given to study how local skills can be enhanced to strengthen their role in the development of local industry.

In most third world countries, secondary schools retain their concern of qualifying pupils for white-collar jobs. They achieve this by pushing as many students as possible up the educational ladder. Diyasena (1976) noted that the 'O' level certificate has ceased to be a primary measure of accomplishment, but is now seen as an instrument of selection, the first hurdle to be surmounted by the able few who hope to stay in the race for the good job.

Timar (1983) also observes that such a situation creates a crisis, when social pressure forces governments to speed up the development of higher education facilities in order to reduce social tension. However, the sheer numbers of school leavers, in turn, quickly outstrip the capacity of higher level institutions, like universities, to absorb them. High school leavers cannot all continue with their education. Neither can they obtain employment. They leave school with virtually no skills to offer any employer nor abilities for self-employment. This trend discourages any initiative and enterprise such that the school leaver is unable even to think of any alternatives. As a rule, pupils have been taught to value mental work so highly that they tend to look down upon manual labour. Workers are therefore associated with labour and the learned do not work, as observed by Diyasena (1976) in Asian countries. These attitudes accentuate further the phenomenon of rural-urban migration which according to Figueroa et.al. (1974), is in accordance with the economic trend that the needy tend to move to more developed zones, that is, the urban centres.

In most third world countries, the population of school leavers flock into urban centres where they cannot get jobs. It is not their fault that this situation obtains, nor is it that of the countries concerned. It is the fault of history. Moyo (1988, p.203) observes that *Zimbabwe inherited an economy characterized by uneven development, possessing on one hand, a modern industrial and commercial sector which was primarily designed to serve the interests of the minority white settler community, yet one which was notably dependent on foreign monopoly capital and technology, and, on the other hand, a low productivity and generally underdeveloped peasant sector*. This legacy in history is now avenging itself on young school leavers. These young people find themselves without places to continue to higher secondary school studies. They are also faced with a lack of

vocational training and an inadequate rate of new job creation. Mackenzie (1988, p. 349) points out that *these thousands of school leavers are likely to be left not only with a sense of personal inadequacy, but also with an academically orientated education that has failed to give them practical skills that they could use in the cause of national development.* One would like to assume that if people in any country get employment, their efforts would be directed at developing themselves, and the country concerned benefits in turn.

1.2 Traditional crafts and the curriculum

Technical skills have always been included in the secondary schools curriculum in Zimbabwe. However, it would seem as if these have not been able to equip school leavers with the functional knowledge to initiate or enter self-help or group employment in rural areas. What could be the reason for this? Is it because the syllabi for such subjects is such that it is aimed at higher education, without preparing students for the realities of life, where they may fail to proceed to high school studies? Is the content covered deep enough to prepare students for the realities of life?

It cannot be denied that rural areas are in fact in need of development. People to develop such areas are available, but schools do not prepare pupils to take up their rightful place where they are needed most. Perhaps the education system needs to be re-aligned to provide specific sets of traditional/technical skills which are aimed at developing these areas. Such a development would allow a balanced and integrated economy to come into being, reducing rural-urban migration (Havelock and Huberman, 1978). Probably in order to reduce, if not to avert unemployment, some elements of traditional skills need to be injected into existing school curricula as an option or part of other technical subject options. The intention would be to encourage knowledge and attitudes conducive to acquiring skills relevant to the development of rural areas. These skills could also provide vocational opportunities for some of those who may not find modern sector employment.

The core aims of offering traditional skills in addition to the academic system as expressed by Diyasena (1976), King (1977) and Lillis and Hogan (1983) could be summed up as follows;

1) To create a sense of national identity through a common culture,
2) to re-orientate students' aspirations towards rural society work,
3) to transmit skills, knowledge and attitudes perceived as useful in self-employment,
4) to inculcate into pupils an appreciation of what activities are important for the country's development by relating the whole medium of

teaching to the economic environment of the student and the social life that goes on around him/her,

5) to enable schools to tap knowledge that exists in the community around them, by enabling members of the community to contribute as an education resource because they are reservoirs of local history and expert craftsmen.

One would like to assume that by offering local skills, school leavers would sustain their interest, and would want to develop the skills to a level higher than they are practised at the moment.

Chikombah (1988, p.16) observes that *the ministry of youth, sport and culture enrolled 500 000 youths in the youth brigade movement to provide them with skills that would enable them to become productive and to participate intelligently in all its endeavours.* This was a good scheme which probably also serves to keep the youths out of mischief. However, the present researcher feels that we cannot keep them there forever. As soon as they leave these activities they seek employment. When they are not provided with fruitful employment the problem resurfaces. All that has been done is to delay the surfacing of the problem. One is bound to argue that a lot more should be done for these youths. Probably, we should consider funding their self-employment projects to keep them engaged in these fruitful activities. It must be realised that as young school leavers, they cannot afford to build workshops, buy raw materials and equipment.

Another critical issue to consider is that generally, we tend to believe that purely academic education solves economic and social problems. Therefore a programme where traditional crafts are taught, can be criticised as an attempt to force children into village agriculture. Tilak (1988) sees this type of strategy as designed to create two systems of education. Where one system will be aimed at the children of the under-privileged and another at the children of the rich. He feels, however, that despite such discrimination, the under-privileged would still work their way into the system designed for the rich. In fact, the present researcher would praise a situation where children who would have ended up working on traditional skills embark on further education to better themselves in life. The idea behind traditional skills is to create transitional employment for those who fail to continue to higher education and cannot find modern sector employment. This form of employment would also enable them to be resourceful, instead of living off their parents or relatives.

At this point, it may be worthwhile to pose this question. What is considered as valid and legitimate education in form and content? Perhaps, one of the answers is that education should have cultural values as well as providing school leavers with such skills, knowledge and attitudes that will enable them to earn a decent living, run a home and fulfil obligations as citizens in a complex society. Educating people is to change them in a socially acceptable way. According to

Peters and Hirst (1970) and Hirst (1974), this involves the development of abilities and qualities of mind such as creative imagination, thinking, judgement, communicative skills and so on. Would knowledge and skills in traditional crafts contribute to higher level outcomes of learning, such as application, analysis, synthesis and evaluation?

It is with these questions that this study was approached. By and large, traditional skills are regarded as a natural talent for the poor, but it could be argued that such talents can also be developed by teaching like in any other field of study.

1.3 Traditional crafts and employment

Traditional crafts practised in Zimbabwe use a combination of fascinating indigenous design solutions evolved over a period of time. Can they offer sufficient and credible employment to rural communities and school leavers? It can be argued that the crafts have the potential to do so, depending on marketing strategies and a genuine commitment to upgrading skills required in the practice of the crafts. Such a commitment would involve an effort to improve design considerations and production strategies used, to make the products easily marketable.

Most traditional artefacts made so far, serve human needs in the form of utility and decorative articles. The articles circulate mostly amongst rural communities with a minimum effort made to upgrade them to appeal to the rich and the international community. An all-out effort would be needed to remove paramount attitudinal constraints towards what constitutes legitimate and socially acceptable employment and to create the necessary socio-economic incentives to make vocations in the crafts productive and worthwhile.

At least it could be contended that the crafts contain some substance that needs to be exploited and developed educationally in terms of the perceptual, aesthetic and creative qualities inherent in them. To be able to do this successfully, we need to involve the educated in the practice of the crafts. According to Bloom et.al. (1971), many countries are now moving rapidly towards a situation where a greater proportion of the labour force will need some form of higher education. These changes are largely determined by changes in the socio-economic situation and the need for more highly trained workers. Havelock and Huberman (1978) also add that people or groups always aspire to complete themselves or develop into something greater or better than they are. Probably, training pupils in local skills would be a human resource development which could utilize local resources in the country. The skills may enable school leavers to generate additional incomes through their own initiatives, starting with simple technologies which they could develop as they develop themselves.

According to Degenhardt (1982), people generally agree that children must be taught things that are useful in life, useful to the individual, to his community, and indeed to society. The curriculum should include items that will help pupils to earn a living and fulfil their obligations as citizens. Bowman (1988) observes that knowledge has little value if it does not link pupils to the world of work, where they could play a useful role in developing society as well as being able to live profitably within that society. One wonders if traditional crafts have this essential educational worth that would lead school leavers to employment.

1.4 Educational worth of traditional crafts

In this study, the term educational worth will be used to mean both the educational and employment values which may be inherent in traditional crafts.

Pupils in schools obtain knowledge, skills and certain attitudes that should enable them to fit into society as adults. These three essential factors in education will be referred to as educational values.

The term employment value will be used to mean the capability of traditional crafts to enable school leavers to find appropriate vocations in the crafts.

In order for traditional crafts to be regarded as desirable in the curriculum, we must find some educational worth in them. We must be able to specify its characteristics and offer reasons for regarding it as intrinsically and instrumentally valuable (Degenhardt,1982). This means that the knowledge and skills contained in the crafts should be analysed to determine their educational value. Gagné (1977) suggests that in both curriculum planning, designing and teaching, there is the act of breaking down a subject into a series of tasks and activities. It appears that the art of teaching is therefore the analysis of a complex product into its individual components. It is also an analysis of a macro-performance into a micro one, that must be attained by pupils separately and in some sequence (Bloom et.al,1971). In a learning situation, the individual components of a content area cannot be treated in isolation. They should be linked directly to their overall context in order for meaningful learning to be brought about (Dahlgren, 1984). Therefore, knowledge and skills in traditional crafts will be analysed into their individual components which in turn will be related to the context under consideration.

The intentions of this study could be diagramatically portrayed as in figure 1.

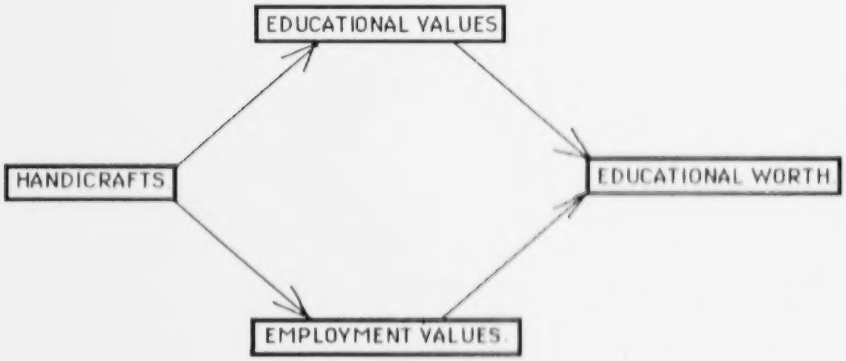

Figure 1: Educational worth of traditional crafts in terms of educational and employment values.

1.5 Research objectives.

Since no other research had been done in this area, it was necessary to delimit the study to one traditional craft, namely Zimbabwean Stone Sculpture.

The research objectives of the study were;

To establish the educational worth of Stone Sculpture by;

1) analysing educational values inherent in the craft, in terms of knowledge, skills and attitudes.

2) determining the employment values of the craft by assessing;
   a) the availability of sculpting stones in the country,
   b) the range and /or types of sculptures produced in the country,
   c) the previous and current market trends of the art,
   d) the cost of setting up workshops and profits realized thereafter.

2. METHODOLOGY.

Research can be defined simply as a search for answers to questions. When these answers are unravelled, a process of knowledge building is initiated.

In this instance, the study aimed at understanding the educational worth of Zimbabwean stone sculpture in order to initiate the process of knowledge building. Previous literature on the craft has tended to concentrate on its cultural and artistic attributes and has romanticised them accordingly. However, this study particularly aimed at gaining an insight into the educational and employment values of the craft.

In this regard, the study is pioneering and should be regarded as exploratory. It is believed that what has been uncovered will foster a better understanding of the attributes of the craft. In addition, it is hoped that viable research questions on this and other crafts practised in Zimbabwe will be generated. As an explorative study simply, its results may not be generalised to other traditional crafts in the country.

2.1 Subjects of study

In view of the objectives of the study which were to establish the educational and employment values of Zimbabwean stone sculpture, the following subjects were preferred.

Practising sculptors.
Sculptors were chosen as subjects for the study particularly to establish the educational values of stone sculpture in terms of knowledge and skills. Since sculptors are the practitioners of the craft, it was only through them that indisputable information on their skills could be observed and collected. This information included the types of tools they used for sculpting, the types of stones they used and where they obtained them. The techniques used to arrive at a completed sculpture represented the skills aspect of the craft.

The Mzilikazi Art and Craft Centre.
The centre was chosen to establish the educational values of the craft. Art courses, including stone sculpture, have been conducted at the centre for a long time. In addition, the centre sells artefacts produced by students.

Sculpture Marketing Organizations.
Four organizations were selected as subjects to determine the employment values of Zimbabwean stone sculpture. The four organizations were the National Gallery Of Zimbabwe, the Bulawayo Jairos Jiri Centre, the Harare

Jairos Jiri Centre and the Canon Patterson Craft Cooperatives Centre. These organizations had established workshops to encourage local people to produce traditional art as far back as 1957. Since then, they have been dealing with the buying, selling and the distribution of traditional artefacts to local and international communities. The researcher felt that these organizations were in a good position to provide information on the markets and market prices of stone sculptures. The information would be used to determine to what extent stone sculpture could provide alternative forms of employment for the unemployed in the country.

The Geological Surveys Department.
The Geological Surveys Department was chosen particularly to establish the availability of sculpting stones in Zimbabwe. The Department is responsible for the inspection and the documentation of minerals and rock formations in the country.

2.2 Data collection devices used

In view of the explorative character of the study, the researcher decided to use four techniques of collecting data which were; questionnaires, interviews, observations and documents. This would enable the researcher to obtain as much information as possible. Burgess (1984, p.184) supports the use of a variety of methods alongside each other. He states that *no method is considered superior to any of the others for each has its own strengths and weaknesses.* It would appear therefore that a multiple of methods may be used concurrently to collect data in the same study as long as they provide the researcher with useful information. (See also Woods, 1983).

Questionnaires. (See Appendix 1 and 2).
Questionnaires were designed to be answered by the sculpture marketing organizations and the Geological Surveys Department.

The first questionnaire was designed to elicit information pertaining to the employment value of stone sculpture. The variables which were to be measured in this instance were;

1. The range and types of sculptures produced by sculptors in Zimbabwe. The variable was split to measure;
   a) The range and types of artefacts produced, whether decorative, utility or whatever.
   b) the types and names of artefacts made, their sizes and weight.

2. In the previous and current market trends of sculptures, the following were to be measured;
   a) The market prices of sculptures in 1979 to 1987,

b) the market prices of sculptures in 1988,
c) their market sources and marketability,
d) the marketing strategies adopted by the organisations to sell the sculptures, and

3 The costs of setting up workshops including running costs, overheads and profits realised.

The second questionnaire, which was directed at the Geological Surveys Department, was designed to obtain information about;

a) The availability of sculpting stones in the country,
b) the quantity of the stones in the country,
c) the chemical compositions of the stones,
d) the type of stones and metallic influences on their colour, and
e) the other commercial uses of the stones.

Questionnaires were chosen here because, according to Borg and Gall (1979), they are best used for seeking factual and unambiguous information. In this instance, the information sought was factual in the sense that it required the organisations to state the types of artefacts they sold, their prices and markets. In addition, questionnaires which are well constructed can save time and money. They also have the advantage of being self-administering, which enables the researcher to concentrate on other forms of data collection.

Interviews. (See Appendix 3).
Interviews were designed to be used on practising sculptors to obtain information on the educational values of stone sculpture in terms of knowledge and skills. Included in the structured interview schedule, was information pertaining to the markets and prices of sculptures.

The interview schedule sought for the following information on the knowledge of sculpting;

1 The types of stones used for carving in terms of the places where they are obtained, their colour and physical properties,
2 the observance of appropriate safety measures while working,
3 the design approaches and principles used to arrive at a completed object,
4 the sculpting processes followed to arrive at a completed sculpture, and
5 the market prices of sculptures from the sculptors' point of view, to support information obtained from the marketing organisations.

Interviews were preferred to collect information on the above issues because, even though according to Fowler (1984) they are time consuming, they have a

number of values over other methods of collecting data. These values are that a) there seems to be a psychological reward in interviewer and respondent interaction, b) an interview can be an effective tool to collect information from people who cannot read and write. In the case of this study, the majority of sculptors were people of rather low academic qualifications, but who were skilled in their trade and c) interviews allow the interviewer to judge the respondent's reaction and make a decision whether to probe or soft pedal on a particular issue (See also Wiles 1982; Alderman 1985; Bell 1987).

Observations (See Appendix 4).
In order to be able to make a fair and, probably, concrete analysis of skills possessed by sculptors, the researcher used direct observations of them at work. Photographs were taken for the analysis of skills involved in sculpting.

The skills observed were;

1 The interpretation of designed sketches onto the subject matter,
2 the use of particular tools at various stages of sculpting,
3 the physical techniques (hand movements) used while sculpting, and
4 the finishing equipment and techniques used.

Observations were particularly useful in this instance, because sculpting is a behavioural skill. Information on any skill can only be collected through observation (Nisbert et. al, 1970). Photographs of the sculptors' activities were taken during the study because, according to Walker and Wiendel (1985), they retain a documentary power which is always denied 'traditional' forms of data-collecting devices.

Documents.
Documents were referred to in the National Archives and Gallery of Zimbabwe. The following information was required for use in the study;

1 The historical development of stone carvings in Zimbabwe,
2 the current status, prevailing practices and conditions of the art,
3 the cultural and artistic values attached to stone carvings from the Great Zimbabwe period up to the moment, and
4 the availability and quantities of sculpting stones deposits in Zimbabwe.

Documents were used for the study of the historical background to stone carvings in Zimbabwe and for other practises attached to the art.

2.3 Validity, reliability and try-outs

Validity.
In order to ensure that data collection devices were valid, the researcher first of all drew up the broad content area involved in sculpting. Factors which make up each area were then identified. These were split into those involved in the making, buying and the selling of sculptures. Questions were then constructed from each of these concepts. In order to find out if the questions were within the content area of the study, the researcher circulated them to his colleagues and a stone dealer who turned out to be his supervisor (Mason and Bramble,1978). The instruments were then adjusted until they were considered satisfactory.

Reliability.
When constructing data collection devices, those items which were considered simple were placed at the beginning of each instrument (Helmstadter, 1964). Sensitive items, which, for example, sought for information on the costs of running workshops, expenditures and profits realised from the sale of sculptures were asked towards the end of each instrument. Questionnaires comprised mainly of multiple choice items. However, a provision was made at the end of most questions for respondents to provide additional information where it was felt necessary.

In order to ensure that data collected would be dependable, the subjects chosen were all familiar with the art. These were practising sculptors and sculpture marketing organizations which had been making, buying and selling sculptures for a long time. Those terms and concepts in common use amongst the respondents were used in the instruments. The researcher was also personally involved in collecting information from the subjects of study. This personal contact made it possible for rapport to be created between the respondents and the researcher (Helmstadter,1964). In order to ensure accuracy in recording, photographs were taken and recorded interviews made only for those sculptors who had agreed.

Questionnaires with letters were distributed personally by the researcher. On certain occasions, it became necessary for the researcher to explain the purposes of the study to respondents, in order to gain their maximum cooperation.

Try-Outs.
Before gathering information, the researcher visited some practising sculptors to familiarize himself with the process of sculpting. When interviewing and observing sculptors, they were also asked to clarify certain concepts or activities. This was to ensure that information collected would be as reliable and as valid as possible.

2.4 Carrying out the study

On receipt of the research proposal, the Department of Curriculum Studies at the University of Zimbabwe wrote to all bodies that were subjects of the study. On arrival in Zimbabwe, the respondents were phoned for appointments. During these appointments, the research intentions of the study were explained to the respondents and questionnaires were distributed at the same time.

At the National Gallery, the researcher obtained names of sculptors he could interview. These included 7 in Harare, 5 in Bulawayo and 4 in Guruve. Names of sculptors in other centres of the country could also have been obtained, but due to time and financial constraints, it was felt that those in the three centres could give the researcher the necessary and sufficiently comprehensive information.

With the Questionnaires distributed and the sculptors identified, the researcher familiarized himself with the process of sculpting before the actual interviews and observations. As soon as the researcher felt that his knowledge was adequate for the study, sculptors in Harare were approached. Within two weeks, 5 sculptors were interviewed and observed.

In between these sessions, documents were referred to in the National Gallery, the National Archives and the Geological Surveys Department.
In the National Archives, information on stone sculpture was quite scanty. However, a book "Zimbabwe Epic" by Mazikana and Johnstone (1982) provided some information on soapstone carvings of the Zimbabwe birds and Ceremonial bowl which were excavated by Archaelogists at Great Zimbabwe. The National Gallery had more books on Zimbabwean Stone carvings. These included Zimbabwean Stone Sculpture by Arnold (1981), Symbols In Stone by Hoffman (1987), The Material Culture Of Zimbabwe by Ellert (1986) and Stone Sculpture In Zimbabwe by Wynter-Irving (1988). These books analysed the cultural and artistic meanings of stone sculptures in the country. Texts found relevant were photo-copied for appropriate use in the study.

A questionnaire had been designed for the Geological Surveys Department to establish the availability of sculpting stones in the country. The researcher was advised by the department that a comprehensive study on Talc deposits in Zimbabwe had not been carried out before. However, documents in the department's library provided the researcher with the information asked for in the questionnaire. These documents were files dating from 1917 on the analysis of Talc samples brought in from various parts of the country. An article on Talc and Pyrophyllite by Clifton (1985) discussed the chemical compositions of Talc in general and its uses in industry.

Sculptors in Bulawayo were also visited. However, they were unwilling to be interviewed. A trip was therefore made to Guruve where three sculptors were

interviewed and observed. On the way back from Guruve, the researcher decided to collect the questionnaires which had been left with respondents in Harare. Even though these had been left with the researcher's forwarding address, a decision was made to collect them personally, since the respondents were preparing for Christmas festivities. While most of the items in the questionnaires were completed by the respondents, those concerning expenditures on material and labour costs and profits realized from the sale of sculptures were not answered satisfactorily by some of the respondents. On making further enquiries, it became apparent that probably the researcher was suspected of being a "Government income tax agent" investigating profits realised by the organisations. Interviewing the respondents only provided hazy information, since it was felt that Government Officials would read the report and perhaps initiate taxation procedures on the organisations.

In Bulawayo, the researcher finally managed to convince 4 sculptors to agree to be interviewed and observed, on condition that their names were withheld.

3. RESEARCH FINDINGS ON EDUCATIONAL VALUES

In this chapter, the findings of the study on the educational values of stone sculpture will be presented. The first part contains a description of information collected on the art of sculpting in terms of knowledge and skills. The second part consists of the analysis of the information, which is aimed at establishing the educational values of the art in terms of knowledge, skills and attitudes.

3.1 Description of findings.

In this description, information collected from the subjects and documents will be presented first. The information includes the history of stone carvings in Zimbabwe, and types of stones, tools and techniques used in sculpting. The skills aspects of the craft will be presented next. These include design, carving and polishing techniques and the handling of tools.

3.1.1 History of stone carvings in Zimbabwe.

Stone carving in Zimbabwe dates back to the thirteenth century, A. D. during the period of the Monomotapa kingdom in Great Zimbabwe.

The first European to see the stone carvings in the ruins was Adam Renders, an explorer, in 1868. Since he did not record his findings, the discovery of the carvings is accorded to Carl Mauch who came across Great Zimbabwe in 1871. His discovery was a soapstone carving of a ceremonial bowl which is shown in plate 1.

In 1889, another explorer and hunter Willi Posselt, is said to have discovered soapstone carvings of four birds in the ruins and decided to hide them to enable him to fetch them at a future date. However, before he did, an archaeologist Theodore Bent, who was invited to undertake excavations at Great Zimbabwe, found them in 1891. The discovery of a fifth bird sculpture is attributed to Richard Hall, a journalist and amateur archaeologist, in 1903. (See plate 2).

Other discoveries of soapstone carvings were made in other settlements developed by later kingdoms of the Rozvi in the fifteenth century. The settlements were at Khami, Nalatalie and Dhlodhlo ruins near Bulawayo. The carvings were bowls, pots and smoking pipes.

In order to understand the religious and cultural meanings of the Zimbabwe birds, it is necessary to know that in folklores, animals and birds assume stereo-

typed roles and become symbols of abstract concepts such as stupidity, cunning, righteousness, good and evil.

The Great Zimbabwe Birds which today serve as a national symbol and the ceremonial bowl, could have been used in religious ceremonies. Other stone sculptures like pipes, pots and bowls were simple utility items.

All the soapstone birds were mounted on monolithic pillars. The carvings could have represented the hornbill, a fish-eagle or a batelieur eagle. The three birds are said to have been occasionally sighted in the Great Zimbabwe. The likely meaning of the sculptures is that the inhabitants believed that one of the birds, the batelieur eagle, represented the spirit medium of Chaminuka, one of the chiefs and a great warrior of the time, during its annual visit to the shrine of the Great Zimbabwe. The batelieur eagle was believed to be a messenger from the spirit world protecting man and warning of eminent danger. Arnold (1981) observes that the sculptures were not ritual objects, but were on permanent display to the populace, in the shrine.

There is another postulation that the birds were fertility symbols related to a fertility cult. The birds and their columns together are said to have represented the male and female aspects of fertility. According to Arnold (1981, p.21)*the male aspect can be attributed to the phallic nature of the columns and the long necks of the birds to the phallic nature of a crocodile.* (See Plate 2) *The chevron pattern is a design composed of angular and thrusting male rhythms. It could also represent the zig-zag of lightning which precedes the advent of the lightning bird which according to its aggressive nature, would be a male symbol. The rounded bodies of the birds denote the womb and this represents the female element in nature. The rain bird also signifies the life giving power of water.* This was particularly relevant to the Rozwi who depended on an agrarian and subsistence economy.

Stone carving in Zimbabwe has continued from the Great Zimbabwe era up to the present century. Sculpting was carried out in isolated villages if and when there was a need for sculptures. Some of these sculptures started finding their way into urban centres and mission stations in the 1950's, where they attracted the attention of European artists and missionaries.

According to Arnold (1981), the modern sculpture movement was started in 1957. Reverend Canon Patterson started a sculpture school at Cyrene Mission. Father John Groeber started a similar movement at Serima Mission and Frank McEwen, the then director of the National Gallery in 1957, started a workshop school at the gallery. Later on in 1966 a sculpture community was started at Tengenenge in Guruve, by Tom Bloemfield and another community was started in Nyanga, by Mrs Pat Pierce. (See also Willet 1986; Ellert 1986; Hoffman 1987; Wynter-Irving 1988).

Sculptors were encouraged to formulate their own themes. As a result, some sculptors today draw heavily on superstitions and folklores from their cultural beliefs while other sculptors, who are practising Christians, draw heavily on biblical stories. However, an emerging generation of sculptors draws its themes from every day life.

Generally, themes made in the country include;

a) Human forms, which render a narrative or statements about ordinary people and their day-to-day experiences,
b) Symbolic forms, depicting the traditional culture of the people.
c) Social activities, such as marriages and social roles of people like chiefs, witch-doctors, mothers, and so on.

Traditional sculptures are functional in as far as they are a recording of a way of life, a social structure, and societal values which are rapidly being eroded due to acculturation. Folklores, which feature animals or birds such as the lions, baboons, hares, elephants or eagles, embody moral and ethical qualities which are regarded as societal values. According to Arnold (1981, p. 87), *the lion signifies authority and order. The hare which is depicted as a rogue, a wit and hero, symbolises skill and intelligence. The tortoise symbolises righteousness, perseverance, common sense and conscience.*

Stone sculpture in Zimbabwe has its origins in the cultural beliefs of the people. It has also evolved to such an extent that it is now regarded as a very strong visual art movement recognised internationally.

Critics of sculpture in Zimbabwe today divide the movement into two groups. The first group are said to be visual artists because even though they repeat the same themes, their sculptures are always original and different. The second group produces what is referred to as 'airport art'. This is said to lack originality and is so repetitive that it lacks individual vision and thought.

3.1.2 Sculpting stones, tools and sculpting techniques

The following aspects of knowledge in stone sculpture were obtained from documents and the subjects of the study. Interviews were conducted with a total of 12 sculptors in Bulawayo. Harare and Guruve. The sculptors were between 18 and 65 years old. Their experience also varied from 1 year to 42 years. The scatter diagram on figure 2 shows the ages and experience of the sculptors.

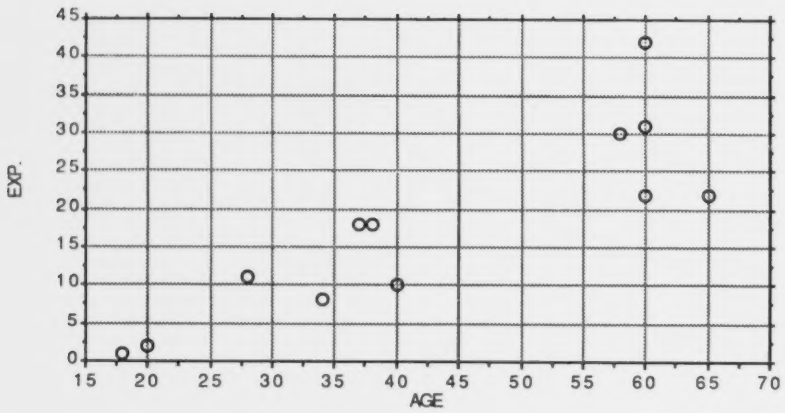

Figure 2: Ages and experience of sculptors

From the interview schedule, the questionnaires and documents, a total of 18 questions sought to establish what could be regarded as knowledge in stone sculpture. Information relating to this, with the frequency of responses from sculptors in brackets, is given below;

The Names Of Places Where Sculpting Stones Are Found.
A total of 20 places, where sculpting stones are found in the country, were obtained from documents in the Geological Surveys Department. (See map in Appendix 5). Sculptors also mentioned the 20 places with an additional 8 places. Two of the places, Guruve and Nyanga, seemed to be best known, because they were named by 10 and 8 sculptors respectively. Three sculptors named 17 places each and one sculptor named 9 places.

The Types and Colours Of Stones Used For Sculpting.
Information on the 10 types of sculpting stones found in the country, was also obtained from documents. The types and colours of stones used by sculptors are shown in table 2;

Table 2: Types of stones used for sculpting

NO.	TYPE OF STONES	COLOUR	COUNT
1	SERPENTINE	BLACK	12
2	"	RED	"
3	"	GREEN	"
4	"	YELLOW	4
5	SANDSTONE	BROWN	2
6	SPRINGSTONE	BLACK	2
7	MARBLE	WHITE	2
8	VERDITE	GREEN	2
9	RHOPIDORITE	BROWN	1
10	SOAPSTONE	SILVERY GREEN	1

The more popularly used stones are black, red and green serpentine. The less popular stones are verdite, rhopidorite and soapstone. The colours of sculpting stones are also influenced by different metals.

The quantity of sculpting stones in the country.
Sculpting stones are found throughout Zimbabwe mainly along the Great Dyke. The dyke is a mineral-rich geological plateau which traverses the country from West Nicholson in the south-west, to Mt. Darwin in the north-east. (See map in Appendix 5). The largest deposits could be as wide as 10 metres and as long as 100 metres. It would appear therefore that there is an ample supply of the sculpting stones in the country. However, most of the places where the stones are found are privately owned by farmers and large mining concerns. The stones are however, available to sculptors at bulk costs of between Z.$50,00 and Z.$60,00 per ton.

Mining techniques.
Sculpting stones in Zimbabwe are normally found within one or two metres of the ground surface (See Plate 3). The deposits also occupy an area between 80 to 100 metres long and 3 to 10 metres wide.

The chemical compositions of sculpting stones.
According to articles written by Kalbskopf (1987) and Bartholomew (1988), sculpting stones in Zimbabwe are compounds of Talc which is an acid metasilicate of Silica, Magnesium and Water (Hydrous Magnesium Silicate). Magnesium Mica is occasionally found in Talc, though its natural alteration product would be Serpentine. Owing to these impurities in Talc, its chemical composition will vary from;
a) $H_2Mg_3SL_4O_{12}$ (with 94,10% Talc) - for soft stones like soapstone to
b)3mgO $4SiO_2H_20$ (with 47,19% Silicon, 14,28% Magnesite and 38,53% Talc)- for harder stones like serpentine.

Relative density of sculpting stones.
There are two types of Talc deposits in Zimbabwe. Those derived from Dolomite (soapstones) and those derived from the serpentinization of other rocks. The relative density of Talc therefore varies from 2,7 to 3,7.

The fracture structure of sculpting stones.
The fractured structure of Talc is either foliated or fibrous. Softer stones like soapstone have a fibrous fracture structure, whereas harder stones like serpentine have a foliated fracture structure. This means that it is advisable to cut stones across natural fissure lines when carving to prevent accidentally cracking the stones.

Other uses of talc.
Talc is commonly used for the following commercial purposes;
As a filler for face powder, paint, toothpaste, rubber, paper and soap,
In the manufacture of textiles, linoleum, pottery, ceramics and laundry tubs. It is also used as a foundry facing, leads for Engineer's and Tailor's pencils, electrical wire insulators and tips for burners.

Choice of subject matter/theme.
Sculptors indicated that they selected their subject matter from the following themes;
Human busts, heads, and figurines (5),
abstracts (4),
gravestones,sign posts, etc (4),
traditional themes derived from folklores depicting animal fables (3),
marriage themes of fertility, barrenness etc (2),
ancestral spirit themes depicting the roles of Witch Doctors (1),
animals, eg elephants, rhinos, etc (1),
chess pieces (1),

Selecting the right size of stone for a sculpture of a specific size.
Sculptors also indicated that they selected stones to make sculptures of specific sizes governed by the following factors;
The shape of stone inspires the artist to work according to its size (6),
with experience, the right size of stone is always selected (4),
the artist actually measures the stone to be used (3),
the artist draws an outline of the object on the stone (2),
the message to be conveyed determines the size of stone selected (1),

Tools used for sculpting.
They also indicated that they used the following tools when sculpting;
Bow Saws are used for cutting stones to required sizes and for preparing bases of sculptures (12),
chasing/Comb hammers are used for trimming stones roughly to size and making a rough texturized finish on sculpted work (12),

rasps are used for a quick removal of waste material (12),
files are used for smoothing rasp marks (12),
water paper is used for the fine polishing of sculptures (12),
cold chisels are used for removing excess material on stone (10),
bolster hammers are used for striking chisel heads when sculpting (9),
gouge chisels are used for carving in intricate corners of sculptures (9),
carbide tipped chisels are used on harder types of stones like springstone (5),
pointing chisels are used for carving in intricate corners of sculptures, (5),
adzes are used for smoothing marks left on stone by a hammer (3),
steel wool is also used for the fine polishing of sculptures (3),
grinders are for smoothing and polishing surfaces of sculptures (2).

Carving techniques.
The researcher wanted sculptors to indicate carving techniques they used to arrive at a completed sculpture. This information was going to be of help to the researcher when observing them at work.
The following techniques are used when carving;
Sculptors cut the base for subject matter on stone before carving (12),
cut the stone across natural formation weaknesses to avoid cracking it accidentally (12),
cut the stone along natural formation weaknesses when removing excess material (10),
check the stone for cracks with a hammer before carving (8),
a comb hammer is used for applying a rough texture like hair or to show a landscape (7),
trace the outline of the object on stone using chalk (6),
make sketches of the subject matter to be carved (6),
make proto-types of their subject matter using welded metal sheets to evaluate the overall appearance of the sculpture (4),

Techniques for polishing sculptures.
Sculptors indicated that they used the following techniques when polishing sculpted work;
Heat stone in fire or hot water to enable the stone to absorb linseed oil (12),
rub down sculpture with different grades of water paper in water (8),
apply linseed oil with cotton wool or fine cloth (6),
use engine oil, Vaseline or floor polish (6),
apply wax and rub down sculpture for a shiny natural finish (4),
leave stone in its natural state (4),
rub down sculpture with steel wool (3),
use grinder with brushes to polish work (2),
dye stone with shoe polish and heat in fire and polish work (2),
varnish stone which gives it a filmy shiny appearance (1),
decorate stone with brass or copper wire (1).

Precautions taken by sculptors when carving.
The sculptors indicated that they observed the following safety precautions when sculpting;
Sculptors wet stone with water to prevent dust (12),
break pieces with hammer and chisel away from people (12),
use a bow saw to cut stones (12),
work on a concrete/wooden bench for comfort (4),
wear air filters to avoid dust (4),
wear goggles to protect eyes from flying chips of stone (4),
use ear plugs to protect ears from noise (3).

Pricing of sculptures.
The following criteria were given as general guide-lines used when pricing sculptures;
Value in terms of meaning (8),
overall size of sculpture (6),
quality of stone in terms of hardness, colour, etc. (6),
quality of workmanship/ creativity of artist (6),
cost of labour, material and transport (6),
popularity of artist (2).

One artist pointed out that the market determines the price of sculptures.

Marketing strategies adopted by sculptors.
Sculptors indicated that they used the following marketing strategies to sell their work;
They display work for the benefit of Embassies, Tourists and Donor Agencies (9),
exhibit work at National Gallery exhibitions (8),
approach private collectors, dealers and galleries to sell their work(3),
undertake international tours and exhibitions (3),
arrange private exhibitions (3),
concentrate on making items in demand (1).

Improving sales and the quality of sculptures.
Improving sales and the quality of sculptures aimed at understanding forces that influence the quality and sales of sculptures produced in the country. The researcher also wanted to find out the feelings and attitudes of practising sculptors towards their art.
The following responses were given;
Sales of sculptures can be improved by;
producing more traditional and cultural themes (6),
producing good original work (5),
educating local people to appreciate and buy sculptures (3),
making themes concerning the political history of Zimbabwe (2),
making sculptures duty free to foreign buyers (2),

educating the management of public buildings like banks, civic centres, etc. to display sculptures (2),
constructing one large warehouse to display all sculpted work (1).

The quality of sculptures could be improved by;
Government control of sales of works of art and subsidizing sculptors (5),
government support in terms of exchange scholarships to other countries (4),
using harder quality stones for sculpting (4),
artists being more creative and expressing themselves freely (3),
sculptors displaying work often and attending all National exhibitions (3),

One sculptor was of the opinion that good quality art in sculpture was already being produced in the country.

3.1.3 Skills attributes in stone sculpture

Skills involve a smooth, precise, and an accurately timed execution of performances using muscles. These muscular movements can only be achieved through constant practice until they are internalised.
Skills were mainly derived by observing sculptors at work.
An observation schedule was used to collect information on working stages followed in sculpting. These working stages included carving techniques, the types of tools used and polishing techniques.

Observed skills, as described below, may not apply to all sculptors. Some sculptors used different techniques depending on their experience and the availability of tools. However, the skills represent the general procedure and sequence.

a) Design stage.
Before the actual sculpting process began, sculptors produced pencil and paper sketches of the subject matter they wanted to carve. A number of ideas were produced until the sculptor had exhausted, what one could probably call, his creative thought process. The sculptor would then select, amongst his sketches, one idea which probably portrayed his inspiration best. This sketch was developed into a design which was evaluated and altered until the sculptor was satisfied with its appearance. (See plate 4).

Later on, proto-types of the subject matter were produced in welded mild steel. The aim was to check if this model would suit the conceptualization of the sculpture. This also enabled the sculptor to plan how he would produce his sculpture. (See plate 5).

b) The preparation stage.
At this stage, sculptors were satisfied with the designed subject matter. They were then ready to select the appropriate stone size. The stone would be tested for natural cracks with a hammer. If it had weaknesses it would give on the impact of hammer blows. Another stone was then selected until the artist was satisfied with the quality of the stone. (See Plate 6).

Meanwhile the tools sculptors liked to use were placed neatly on a working bench or on an appropriate surface. (See Plate 7).

Before carving, an outline of the subject matter would be traced on the selected stone with chalk. This was to check if the stone would accommodate the sculpture. (See Plate 8).

The stone would then be cut with a bow saw on one end, to form a base for the sculpture. This flat end meant that the stone had a firm support when being carved. (See Plate 9).

c) Carving.
When carving, the stone would be blocked out by cutting across natural formation weaknesses to avoid cracking it accidentally. It could also be split along the weaknesses to reduce it quickly to size. (See Plate 10).
A chasing hammer was then used to remove waste from the stone.(See Plate 11).

Cold chisels and hammers were used to carve into intricate parts of the sculpture. Such parts were necklines, eyes, nose and so on. Chisels were either flat, grooved or pointed. (See Plate 12).

The rough surface of the sculpture would then be smoothened by using adzes. (See Plate 13).

Rasps or grinders were used to reduce the sculpture to approximate dimensions. (See Plates 14 and 15).

A series of files, ranging from rough to smooth, would be used to remove marks left by rasps and to take the sculpture to its final size. (See Plate 16).

d) Finishing.
When finishing the sculpture, a series of water paper from grit 200 to 600 was used in water. Steel wool was also used by some sculptors, instead of water paper. This was to even out all depressions on the sculpture. Successful sculptors used grinders fitted with brushes. (See Plate 17).

When the sculpture was satisfactorily water papered, it was washed in water to remove dust particles. (See Plate 18)

The sculpture was then heated in fire or left in the sun to absorb heat. This was done to enable the sculpture to absorb linseed oil, floor polish or wax. Wax or linseed oil was then applied on the sculpture. After some time the wax was rubbed down with a soft cloth or cotton wool to obtain a shiny surface. (See Plate 19).

Wax was applied repeatedly until satisfactory results were obtained. (See Plate 20).

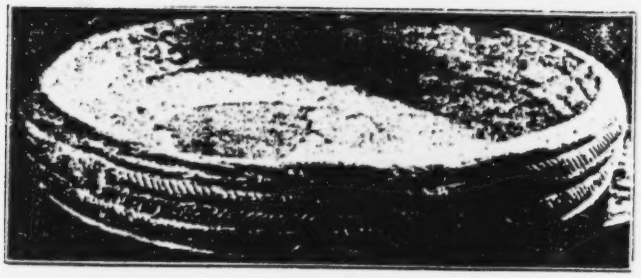

Plate 1: *Carved soapstone Ceremonial bowl from Great Zimbabwe*

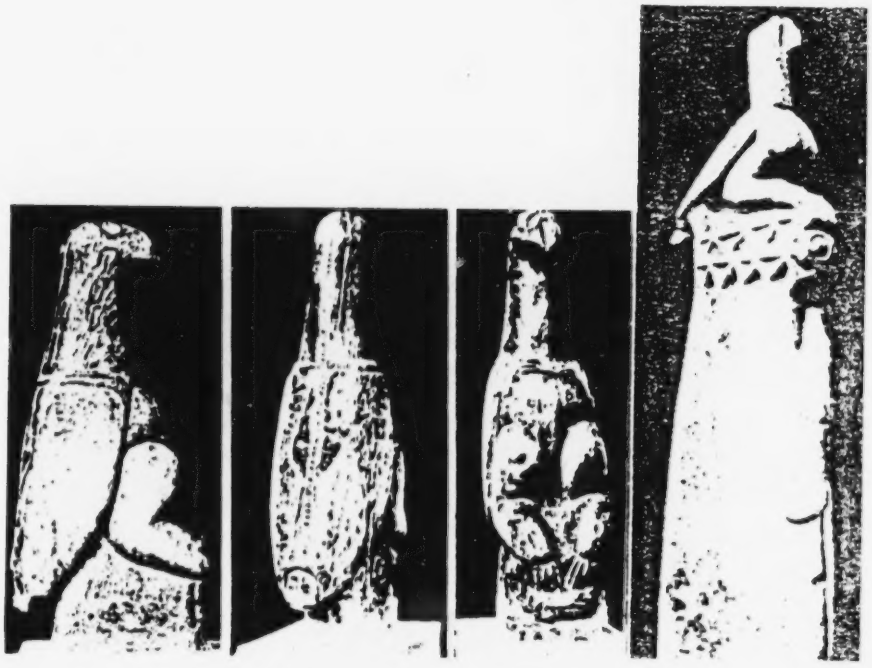

Plate 2: *Four soapstone birds from Great Zimbabwe*

Plate 3: ***Depth of sculpting stones below ground surface***

Plate 4: *Design sketches for subject matter*

Plate 5: *A proto-type of the designed subject matter*

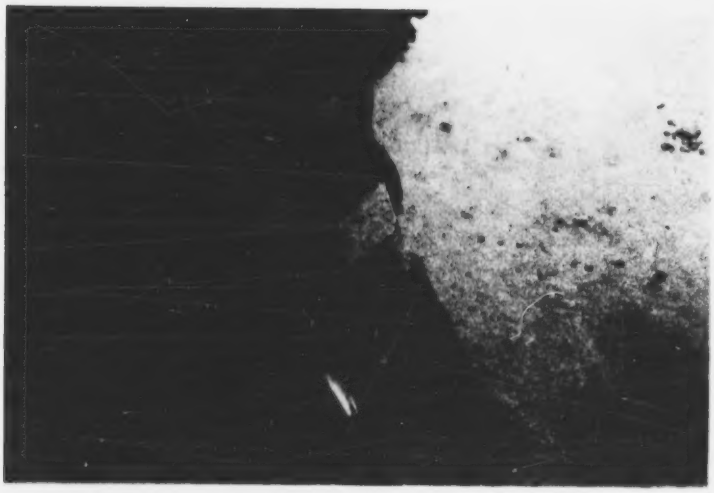

Plate 6: *Testing a stone for natural cracks before carving*

Plate 7: ***Tools used for sculpting***

Plate 8: ***Sketching an outline of subject matter on stone***

Plate 9: *Cutting base for a sculpture with a bow saw*

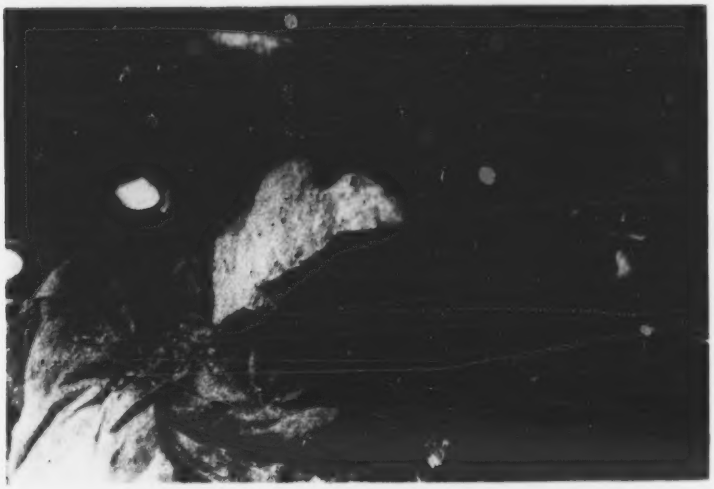

Plate 10: *Blocking out a sculpture*

Plate 11: ***Using a hammer to remove excess material***

Plate 12: *Carving in intricate parts of a sculpture using a chisel*

Plate 13: *Smoothing the surface of a sculpture with an adze*

Plate 14: *Smoothing the surface of a sculpture with a grinder*

Plate 15: ***Using a rasp to remove waste material on a sculpture***

Plate 16: ***Using a file to remove rasp marks on surface of sculpture***

Plate 17: ***Polishing a sculpture with water paper in water***

Plate 18: ***Washing a sculpture in water to remove dust***

Plate 19: ***Applying wax to a sculpture***

Plate 20: ***Rubbing down wax to get a shiny finish on a sculpture***

3.2 Analysis of findings

In order to analyse educational values in stone sculpture, a framework derived from conventional taxonomies will be used.

According to Krathwohl (1964, p.21) *a taxonomy is an educational-logical - psychological classification system.* The system is psychological and educational in as far as it describes the kinds of human behaviour we seek from students. It is also a logical classification system because the subject matter which learners are expected to master is sequentially categorized into the types of learning experiences or capabilities.

A taxonomy is divided into three domains, the cognitive, the psychomotor and the affective (Krathwohl,1964; Gagné, 1974; Harrow, 1972).

The cognitive domain includes those learning activities having to do with thinking, knowing and problem solving. The psychomotor involves manual and motor skills which have to do with the use of hands in executing tasks like writing, cutting, carving, etc. The affective domain includes those objectives dealing with attitudes, values, interests and appreciation.

Educational taxonomies are mainly used for the construction of educational objectives. They are therefore suitable as a framework for the analysis of educational values in stone sculpture. However, it must be realised that most educational behaviours are combinations of the cognitive, the affective and the psychomotor domains. As an example, skills cannot be acquired without prior knowledge of the phenomenon in question. Neither can they be acquired without a need, which involves attitudes. It must be understood that the analysis of educational values in stone sculpture into the three domains, is an academic or artificial division which the researcher hopes will bring about a better understanding of its educational potential.

3.2.1 Knowledge values in Zimbabwean stone sculpture

Knowledge inherent in stone sculpture will be analysed by using a modification of the cognitive domain as described by Krathwohl (1964). The hierarchical structure of knowledge in terms of higher level outcomes of learning which include comprehension, application, analysis, synthesis and evaluation will be used. However, the sub-divisions of each category will be adjusted to suit this particular study.

Knowledge is a wide term covering the mastery of a variety of concepts, methods and processes. In the case of stone sculpture, this study found that the craft contains the following types of knowledge;

3.2.1.1 Low level outcomes of learning in stone sculpture

Knowledge in this category is termed low level outcomes of learning because it mainly involves recall. Learners are expected to remember appropriate material when asked. Even though remembering may require the organization or re-organization of a problem or material, it is still regarded as a relatively minor part of learning. The material to be recalled may be thought of as a foundation on which more complex and abstract forms of knowledge are built. Low level outcomes of learning deal with the following types of knowledge in stone sculpture;

a) The knowledge of specific facts.
From the research findings, there are six areas of knowledge in stone sculpture which could be considered as concerning the recall of specific facts. These are;

The names of places where suitable sculpting stones are found.
This cognitive ability calls for learners to know and identify places where sculpting stones are found in the country. Learners would be expected to state the names and locate them on a map.

The types and colours of stones used for sculpting.
This intellectual skill calls for learners to know the different types of carving stones. Learners would also be expected to discriminate between and describe their colour and physical appearances.

The chemical compositions of sculpting stones eg. Talc.
The ability involves knowing and understanding compounds and their chemical compositions.

The other uses of sculpting stones.
This capability would enable learners to know that sculpting stones like Talc have other commercial uses. Learners would therefore be in a position to value and conserve the stones and can be motivated to exploit these other uses to the benefit of the country.

The relative density of the stones.
With this capability, learners would know the general weight and density of stone materials. This type of knowledge would be useful when they select stones for carving. Since some of the sculpted art is purchased outside Zimbabwe, the weight of the stones is a major influence on freight costs.

The types of tools used for carving.
The knowledge of tools used for carving enables learners to recognise, name and discriminate the characteristics of the tools and their appropriate functions.

b) The knowledge of methods and processes.
The knowledge of methods and processes can also be included in the low level outcomes of learning. They involve that learners must understand and remember bits of information relating to the following;

Carving techniques.
At this lower level of abstraction, knowledge of carving techniques relates to a preliminary stage which serves as a preparation for the actual process of carving. As such, it is separated from its total context for the purposes of analysing the levels of knowledge involved in sculpting. At this level, learners would be expected to know the general techniques used when carving. This calls for learners to comprehend, remember and probably recite the techniques as an indication that they could follow them accurately when called upon to carve.

Polishing techniques.
This lower level of knowledge serves as a foundation from which more involving techniques of polishing can be built. At this stage of learning, learners will be expected to remember and recall the various techniques, materials and equipment used for polishing sculpted work.

Mining techniques.
Learners would be expected to know the various methods used for mining in the country. This will enable them to appreciate the difficulties of mining. Knowledge of the equipment necessary for different forms of mining would be useful, since sculpting stones need to be excavated from the earth.

c) Knowledge of conventions.
The knowledge of conventions in stone sculpture relates to;
Remembering and observing safety precautions.
Like other practical subjects, stone sculpture requires that safety precautions be observed. Learners should understand the dangers in practical work and take necessary precautions to prevent accidents.

d) The knowledge of trends and sequences.
Knowledge of trends and sequences in stone sculpture concerns;
The cultural history of stone carvings in Zimbabwe.
In order to maintain the cultural heritage of Zimbabwe in stone sculpture and to preserve this cultural identity, it is of particular importance that learners be sensitised to the origin of themes that are sculpted by the current sculptors in the country. Learners would also be made aware of folklores, faith, superstitions, religious customs and observances of the ancient African civilization that inhabited the Great Zimbabwe and some other such places in the country. The chances are that they would know these stories from home, the media and from visiting such places.

3.2.1.2 Higher level outcomes of learning in stone sculpture

Beyond the recall of specifics and universals, the recall of a pattern, structure or setting and the knowledge of methods and processes, stone sculpture involves higher level outcomes of learning. Higher level outcomes of learning refer to those abilities, skills and techniques which deal with specific materials and problems at an abstract level to achieve a particular purpose. These include application, analysis, synthesis and evaluation. The stages of sculpting which can be placed under these categories are;

a) The application of methods and processes.
In the application of methods and processes, learners would use basic knowledge obtained in theory to perform the following activities;

Carving.
At this higher level of abstraction, carving is considered in its total context. Learners will be expected to apply what they know about various sculpting tools, materials and so on to real stones. The display of such an ability indicates an understanding of problem solving techniques and their application to real and concrete objects.

Polishing.
As in the case of carving, polishing will at this level be related to its total context. The concept of polishing will be brought into use by solving problems relating to polishing an actual piece of sculpted work. Learners would be expected to apply their knowledge of tools, polishing materials and various polishing techniques to arrive at an acceptable finish on a sculpted piece of art. This would also involve explaining, describing and determining the most appropriate technique for finishing the set piece of work.

b) The analysis of criteria
Analysis of criteria involves;
Adopting correct marketing strategies, improving sales and the quality of sculptures made. The ability to maintain good standards and to improve the sale of commodities is critical to any business venture. In this instance, sculptors need to plan how to market their art. This would involve knowledge of and a clear understanding of prevailing market conditions which could work against or in favour of sculpted products. A thorough scrutiny of the products' marketing trends needs to be made in order to maintain and improve sales. The quality of work produced would be judged and adjusted accordingly to suit market demands. An ability to generate ideas on new and appealing themes is called for. This would also include adopting fresh marketing strategies like advertising and exhibiting work.

c) The analysis of theories and structures.
The analysis of theories and structures in stone sculpture involves;

Analysing the different types of sculpting stones and metallic influences on their colour. The ability to identify the different types of sculpting stones and other metallic influences on their colour extends beyond the knowledge of specific facts. This ability involves an analysis of elements responsible for the colour pigmentation of the stones. It also includes the knowledge of minerals which are mined close to where the stones are found.

Describing the fracture structure of stones.
With this ability, learners can describe the structure of fractured stones. Knowledge of the natural geological formation of rocks would be very useful. This could be achieved after a careful, micro-scopic examination and analysis of broken stones. Knowledge of the cleavage of stones would enable learners to work on the stones with a full understanding of the formation weaknesses and strengths of the stones.

d) The synthesis of ways and means of dealing with specifics.
This sub-category which is a higher level outcome of learning concerns;
Estimating the size of stone to suit a specific size of sculpture without wastage. The ability to perform this involves good knowledge of planning and accurate judgement. Common sense and experience can make this possible.

e)The synthesis of criteria.
Relying on their previous experience and knowledge in design, learners would be expected to;
Design a subject to make.
The selection and final choice of a theme to make in stone indicates a complex creative ability which involves producing a unique form of communication. It can be regarded as a synthesis of methods, tools, materials and experience. Images produced have a set of values and abstract relations with the society in which they are created. The artwork itself conveys ideas and feelings about the artist's imagination and life experiences.

f) The evaluation of stone carvings in Zimbabwe.
In learning about the history of stone carvings in Zimbabwe, some students may accept the roles of ancient customs in preserving moral values and the social order. Yet others may stand back and critically evaluate the relevance of such a history to the contemporary life and art in the country. Learners would have been made aware of such a history and would make a choice as whether to accept, reject or select between myth and fact.

g) The evaluation of criteria.
The evaluation of criteria concerns;
Pricing of sculptures.
The ability to arrive at a fair prize for sculpted work, involves an evaluation of one's work in terms of meaning, message conveyed, labour and material costs. With this ability, learners would judge their work according to this criteria.

The criteria would enable them to arrive at a price which takes into account the true value of a sculpture while making it affordable.

3.2.2 Skills inherent in Zimbabwean stone sculpture

A skill can be defined as the ability to perform an activity expertly and well. According to Gagné (1974) skills, as learned capabilities, make possible the precise, smooth and accurately timed execution of performances involving the use of muscles. Since skills involve the use of muscles, they fall under the psychomotor domain.

Adorni et. al. (1986) add that a skill is not only a mechanism to generate actions, but is also a representation of knowledge in actions. It would appear that skills involve other kinds of capabilities such as cognitive and affective abilities, before they can be mastered. In other words, to perform a motor act like sculpting, learners must first value the art of sculpting and secondly, they must have received prior knowledge of materials, tools and processes of sculpting.

According to Read (1988), psychomotor skills need to be learnt from both internal and external conditions. Internal conditions involve the organization of muscular movements such that the manipulation of tools becomes easier by getting muscles used to the process. External conditions involve practising the requisite movements repetitively in a situation that would provide an immediate feedback to the learner (See also Singer, 1980).

In order to analyse motor skills inherent in Zimbabwean stone sculpture, the hierarchical structure of the psychomotor domain as described by Baldwin (1971) will be used. The hierarchical structure involves perception, guided response, mechanism and complex overt response.

In the case of Zimbabwean stone sculpture, those activities that entail the use of tools when carving and polishing sculptures, can be considered as motor skills. The activities involve the use of a number of tools and materials. The ability to use each type of tool or material means that one would have mastered each level of the hierarchical structure of the psychomotor domain. The researcher will therefore use a few examples from these activities when explaining what is meant by the hierarchical structure of the domain.

From the research findings, it can be inferred that stone sculpture involves the following levels of skills.

a) Perception.
According to Baldwin (1971) perception is the first essential step in performing a motor act. It involves knowledge of objects and their quality. In the case of

stone sculpture, it means that learners must first, be familiar with the tools they would use when, for example, carving or polishing sculptures. The ability to sculpt means that they should have had previous knowledge of the materials used for making sculpting tools, the quality and hardness of the tools in relationship to that of sculpting stones and the feel of the tools in terms of their shape, size and weight. In addition to the above, learners ought to be sufficiently motivated as a preparation for them to appreciate the task of sculpting.

A specific example of perception, in as far as sculpting is concerned, could be the use of a bow saw for cutting stones to size. In this case, learners must be familiar with the shape, size and weight of the saw and that they should have the feel of the saw in order for them to be sufficiently motivated to try it out in cutting the stones.

b) Guided response.
Guided response can only be done when learners are familiar with the feel and knowledge of the tools. The acquisition of skills demands that an expert demonstrate sequentially the process of sculpting or polishing. This enables learners to copy and imitate the requisite behaviour.

The process of guiding learners is carried out in stages. In the first stage after demonstration, learners should be given the opportunity to tackle the activity by trial and error. Individuals or groups of students would be attended to by making sure that they are handling the tools properly, making recommended arm movements and observing appropriate safety measures. This stage enables learners to obtain an immediate feedback of their activities and to acquire the correct motor acts. The next stage will involve repetitive exercises on the part of the students to enable them to gain confidence and reinforce their skills.

c) Mechanism.
In order to be competent in a skill, repetitive practice is called for. It enables motor acts to be internalised. A possible try out of, for example, sculpting techniques may be involved. Such techniques could involve cutting stones to size by using a chisel and a hammer. The student may cut the stone from various angles using varying forces until he selects his personal and best way of chipping off unwanted bits of stone. In polishing, this may involve knowing the exact amount of pressure he has to apply on wet paper to get the best results. Simply stated, skills reinforcement at this stage requires that the learner should know when to use the tools and how to control his motor acts in order to obtain the best results from his actions.

d) The complex overt response.
At this level, learners would be in a position where they could perform exact motor acts accurately. Their muscular movements would be precise, smooth and accurately timed. In other words, they would have perfected and internalised their motor acts such that there is an almost automatic co-ordination between their brain and reflex actions. For example in using a bow saw, learners would be able to do this easily and confidently.

3.2.3 Affective values in Zimbabwean stone sculpture

The affective domain involves those learner behaviours that include attitudes, values, interests and appreciation. According to Gagné (1974), attitudes are internal states that influence or moderate the choices of personal action made by individuals. These attitudes are considered to have emotional components, cognitive aspects and behavioural consequences. Attitudes are acquired throughout life from situations encountered by individuals at home, in the streets, in church and in schools. They can be motivated by beliefs and ideas. In addition, these internal states can be acquired through 'human modelling' until they are internalised (Gagné, 1974). Attitudes can therefore be stated as those behavioural traits that persist over a period of time and tend to make an individual's behaviour consistent in a variety of specific situations.

In order to analyse the attitudinal values of Zimbabwean stone sculpture, a modification of the affective domain as described by Bloom et. al. (1971) and Krathwohl (1964) will be used. The hierarchical levels of the affective domain involve receiving, responding, valuing, organization and the characterization of a value concept. A few examples from the research findings will be given to illustrate the affective values in stone sculpture.

The resulting attitudes which could be expected from learners from the knowledge of Zimbabwean stone sculpture concern the following;

a) Receiving.
The lowest level of the affective domain is receiving. It involves that learners should be aware of the existence of certain phenomenon, for example, safety precautions. At this level, learners need to be sensitized to their importance. They should be conscious of them since their observance prevents injury. Learners would in turn show willingness by obeying and observing the rules.

b) Responding.
In responding, learners would be at a higher level than merely receiving. They would show acquiescence in responding by, for example, remembering safety rules.

Responding as an attitude, would therefore express itself in that learners are made aware of safety rules. They in turn would observe the rules when working. Finally, they would appreciate the advantages of observing the rules when it is realised that no one got injured while they were working.

c) Valuing.
When learners have noted the advantages of peculiar work styles, like observing safety rules, they would appreciate such work practices. This appreciation is valuing the work styles in question. Valuing would, for example, include the following behaviours;
Learners would apply safety rules as a sense of responsibility towards others and themselves, to prevent injury. This indicates an acceptance of a value. They would then draw the attention of others to the rules and advocate for their observance at all occasions. This indicates a preference of a value and finally, learners would show some commitment to the observance of safety measures as a value, by a combination of observing them at all times and convincing others of their importance.

d) Organization.
Organization involves the selection of an appropriate action to take in a given situation. In observing safety measures, there are certain occasions when wearing air-filters becomes unnecessary, for example, when polishing a sculpture by wetting it in water, no dust will result because a wet stone does not produce dust. Another occasion may arise when cutting stones. A sculptor can prefer to use a bow saw rather than a hammer and chisel. Such behaviour is in fact a conceptualization of a value, because the sculptor selects the best method to use out of many.

e) Characterization of a value.
At this stage affective values would have been internalised by learners. Learners would have formed certain value judgements so that their behavioural patterns are consistent and specific. They would, as an example, adopt certain styles in selecting those themes which are particular and unique to themselves. Learners would, as another example, be experienced enough to select quicker methods of conceiving themes to make by discarding those preliminary design stages which could be considered laborious and time consuming. These examples indicate a general set of behaviour which can be achieved with experience and maturity. However, the characterization of a value stage, occurs when individuals develop consistent working styles and a good conscience towards their art and the public whom they serve. As an example, in the techniques of polishing sculptures, some sculptors indicated that they dyed their work with shoe or floor polish. Other sculptors objected to the practise by stating that it was poor workmanship because shoe polish hides the true colour of the stone used. They charged that if the sculpture was scratched, its true colour would be revealed and that this was dishonesty in the use of materials. This behaviour indicates the characterization of a value concept. A good code of conduct and ethics would have been formed by those who believe and advocate an honest use of materials.

4. RESEARCH FINDINGS ON EMPLOYMENT VALUES

In this chapter, findings on the employment values of stone sculpture will be presented. The first part contains a description of sculptures produced in Zimbabwe in terms of their types, markets, marketing trends, and profits realised from sculpture sales. The second part consists of an analysis aimed at establishing the employment value of the craft in the light of this information.

4.1 Description of findings

In this description, information collected from the subjects of study concerning the employment values of the craft will be presented as follows;
The range and types of sculptures which are produced in the country,
marketing strategies and market trends for the sculptures,
the cost of setting up workshops in terms of running costs, overheads and profits realised from the sale of sculptures, and the employment creating possibilities of the art.

4.1.1 Range and types of sculptures produced

The range and types of sculptures produced in the country included a) types of sculptures, b) the number of sculptures made and sold per month, and c) the size of sculptures.

a) Types of sculptures produced
Sculptures produced in Zimbabwe are either decorative or utility. The pie chart on figure 3 shows the types of sculptures made according to responses obtained from both the sculptors and the marketing organizations.

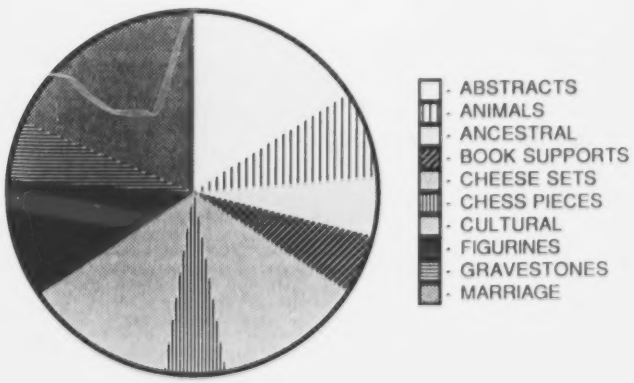

Figure 3: Types of sculptures produced in Zimbabwe

The most popular themes are marriage, abstracts and cultural themes. The least popular are ancestral spirit themes, chess pieces and book supports.

b) The number of sculptures made and sold per month.
Four of the five marketing organizations referred the researcher to practising sculptors for specific answers on this issue. They pointed out that their role was to collect as many good sculptures as possible from all sculptors in the country and sell them to customers. However, one organization pointed out that between 10 and 15 sculptures were made within a month. They could sell between 45% and 50% of these in that month. Responses from sculptors on the issue are shown in Table 3.

Table 3: Number and percentage of sculptures made and sold per month

SCULPTOR	NO. OF SCULPTURES PER MONTH	% SOLD PER MONTH
A	1	ART IS UNPREDICTABLE
B	2	50
C	2	ART IS UNPREDICTABLE
D	2	50
E	2	40
F	3	25
G	3	55
H	3	55
I	3	50
J	4	25
K	4	ART IS UNPREDICTABLE
L	4	50

c) Sizes of sculptures produced.
All subjects pointed out that sizes of sculptures could either be in terms of weight or dimensions. However, weight seemed to play a critical role since most of the sculptures have a foreign market. Sculptures produced ranged from as small as half a kilogram for book supports to as large as sixty kilograms for abstracts.

4.1.2 Marketing strategies and market trends for sculptures

In the marketing strategies and market trends for sculptures, the researcher wanted to find out the following;
a) Marketing strategies adopted by respondents in selling their products,
b) the percentage price increase of sculptures over the past 9 years, 1979 to 1987,
c) the current market prices of sculptures in 1988,

d) the market sources of sculptures, and
e) the percentage of sculptures bought by each market source.

a) Marketing strategies for sculptures.
Respondents indicated that they adopted the following strategies to sell their products;
Sculptors exhibit their work in tourist attraction centres (9),
sculptures are exhibited both locally and internationally (8),
international exhibition tours are undertaken by sculptors (3),
marketing organizations hold speeches for foreign embassies and associations (5),
sculptors hold private and individual exhibitions (3),
television, press and magazine adverts are used by sculpture marketing organizations (3),
sculptors approach private collectors, dealers and curio shops to sell their work (3), and
organizations also advertise their products through motor-car stickers (1).

b) Percentage increase of sculptures from 1979 to 1987.
Both sculptors and sculpture marketing organizations indicated that prices of sculptures have not remained static over the period 1979-1987. The total perceived percentage increase over the 9 years, however differed from one organization to another and from one sculptor to another. Responses from sculptors ranged from nil% to 90% with a mean percentage increase of 41,6%. Responses from the sculpture marketing organizations ranged from 15% to 100% with a mean percentage increase of 42%.

c) Current market prices of sculptures, 1988.
All subjects seemed to agree on the current price range for sculptures. Table 4 shows the price range of sculptures according to their types.

Table 4: Types and price range of sculptures in 1988

TYPE OF CULPTURES	1988 PRIZE RANGE IN Z.$.
CHESS PIECES	2,00 - 4,00
BOOK-SUPPORTS	2,50 - 5,00
ANIMAL FORMS	5,00 - 40,00
FIGURINES	5,00 - 50,00
CHEESE SETS	10,00 - 50,00
ABSTRACTS	20,00 - 2 600,00
MARRIAGE THEMES	200,00 - 2 200,00
CULTURAL THEMES	500,00 - 1500,00
GRAVESTONES	500,00 - 1 500,00
ANCESTRAL THEMES	1 000,00 - 2 000,00

d) Markets for sculptures.
All subjects concurred on the markets for sculptures produced in the country. The markets for sculptures are International Galleries, The National Gallery Of Zimbabwe, Private Galleries, Tourists, Foreign Embassies, Aid/Donor Organizations, Regional Galleries and Local People.

e) Percentage of sculptures bought by each market.
The markets for Zimbabwean sculptures are either international, regional or local. Subjects were requested to indicate the number of sculptures bought by each market in percentages. Responses from the sculpture marketing organizations ranged from 32% to 89% for international markets, from 8% to 28% for regional markets and from 3% to 40% for the local market. From these responses, it would appear that 61% of sculptures are bought internationally,18% regionally and 21% locally.

On the other hand, responses from sculptors ranged from 25% to 100% for international markets, from 0% to 35% for regional markets and from 0% to 66% for the local market. It would appear from the these responses that 66% of the sculptures are bought internationally,14% regionally and 20% locally, as shown in figure 4.

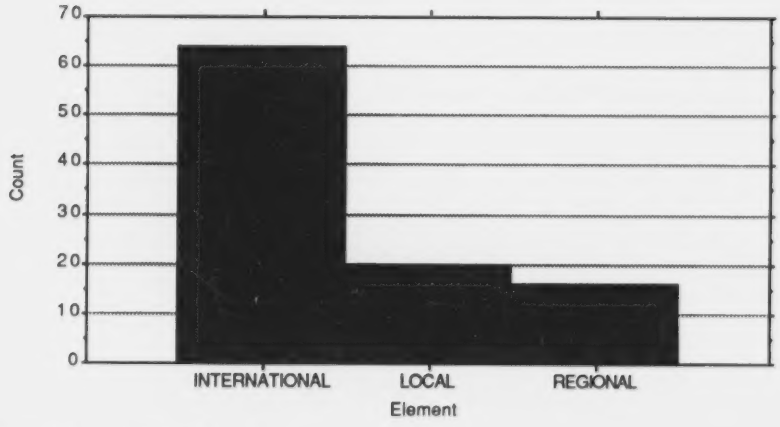

Figure 4: Sizes of markets

4.1.3 Costs of setting up workshops

The researcher also wanted to determine the cost of setting up and running workshops from the subjects. Running of workshops included labour and material costs. Profits made by individual artists and marketing organizations

would be determined from these figures and the selling prices. None of the sculptors interviewed owned workshops. They worked in their backyards. In addition, 75% of them were otherwise employed and only sculpted after work or over weekends. Their minimum and maximum expenditure in material and transport costs were Z.$12,00 and Z.$80,00 as shown in Table 5.

Table 5: Sculptors' expenditure and profits per month

SCULPTOR	EXPENDITURE IN Z. $	PROFIT.
A	12,00	NOT SURE
B	80,00	SUFFICIENT.
C	50,00	SUFFICIENT.
D	50,00	SMALL.
E	30,00	SMALL.
F	30,00	SUFFICIENT.
G	35,00	SUFFICIENT.
H	30,00	NOT SURE.
I	30,00	SMALL.
J	25,00	NOT SURE
K	30,00	SMALL.
L	30,00	SMALL.

On the other hand, marketing organizations owned a minimum of one workshop each. One organization had converted its workshop into a training centre which was financed by a commercial company. The other four organizations did not employ artists on full time. Instead, artists produced work which was sold through the organizations. Material and transport costs were deducted and the remainder of the money was then paid to the artists. However, minimum and maximum expenditures for sculpture marketing organizations in material and transport costs were Z.$455,00 and Z.$1 359,00, as shown in Table 6.

Table 6: Marketing organizations expenditure and profits per month

ORGANISATION	EXPENDITURE IN Z.$	PROFITS IN %
A	540,00	40
B	445,00	20
C	NO RESPONSE	NO RESPONSE
D	NO RESPONSE	33
E	1 359,00	23

4.1.4 Creation of employment suggestions

The researcher wanted to find out if Zimbabwean stone sculpture could be used to create employment to the unemployed. The opinions of people dealing with the vocation were considered crucial on this issue, because they were quite familiar with the trade. Sculptors and sculpture marketing organizations gave the following responses;
Galleries should pay fair prizes for sculptures (5),
Government should promote and control the sales of sculptures (5),
The quality and range of sculptures need to be improved (4),
More people should receive formal training in sculpture, especially students (4),
The international community should be coerced to purchase more sculptures (3),
Local people should be encouraged to appreciate and buy sculptures (2),
The creation of cottage industries run by cooperatives could create employment opportunities (2),
Increasing the number of exhibits internationally and locally (2),
Management of public buildings like banks, civic centres, halls, etc should be encouraged to buy and display sculptures (2).

However, one marketing organization and three sculptors were of the opinion that stone sculpture cannot provide any employment.

4.2 Analysis of employment values

In order to analyse the employment values in Zimbabwean stone sculpture, factors such as the availability of sculpting stones in the country, marketing strategies for sculptures, their markets, their market trends, and costs of setting up and running workshops will be used. These factors will be considered as prime indicators of the capability of stone sculpture to create employment.

4.2.1 Availability of sculpting stones

As has been shown in the presentation of educational aspects of stone sculpture, sculpting stones are available in sufficient quantities throughout Zimbabwe. The stones can be easily mined at a depth of between 1 and 2 metres below the surface of the ground. Besides, they can be put to some other commercial uses which need to be exploited to the benefit of the unemployed in the country. The bulk costs for the stones are between Z.$50,00 and Z.$60,00 per ton inclusive of transport costs, depending on distances involved. Sculptors close to these places simply pick them up and carve, as is the case with those at Tengenenge in Guruve. However, high transport costs have to be met by those who are further away from such places. What is most encouraging is that sculpting stones are

mostly found in well established mining concerns which are already serviced with a good transport network system. (See map in Appendix 5).

4.2.2 Markets for sculptures

Perhaps, this is one of the critical issues which has to be considered in any business venture. Without markets, manufactured products cannot be disposed of. The international market seems to be the most important market for Zimbabwean stone sculptures. It buys about 64% of them. It is reasonable to assume that sculptures acquired by the foreign market are of a higher quality which could only be produced by experienced sculptors. Beginners would therefore find it difficult to break into this market. They would need to resort to regional and local markets which appear rather small at the moment. Probably, what would be required is to increase the percentage of sculptures bought regionally and locally in order to boost the employment capability of stone sculpture. Responses from sculptors indicated that the craft has the potential to create employment, as long as local people were encouraged to appreciate and buy sculptures, including public buildings like banks, civic centres and halls. Naturally, the international market needs to be retained and even developed to create diversity in the marketing of sculptures.

4.2.3 Marketing strategies for sculptures

From the responses of the subjects, there is no doubt that the art is promoted in several ways. It would appear that the present strategies only cater for the few sculptors who are currently engaged in the art. If stone sculpture were to be used as an alternative form of employment, vigorous promotion would be needed. The employment value of the craft could then be expected to grow gradually, but this could be unnoticeable within the near future. We cannot therefore conclude that the craft can offer alternative forms of employment, before we are certain that growth could be sustained.

4.2.4 Market trends for sculptures

Probably, another important factor is the previous and current market trends for sculptures. From the presentation of research findings on the employment values of stone sculpture, it can be noticed that between 1979 and 1987, the average increase in the prices of sculptures is estimated as 42%. This growth must be compared to the rate of inflation in the country to determine the actual price increase of sculptures. According to figures obtained from the Embassy of the Republic of Zimbabwe in Sweden, the average yearly inflation rate in the country is estimated at about 2,5%. So over a period of 9 years, this rate can be estimated at 22,5%. However, this may not be the case since inflation grows

accumulatively. The percentage increase in the prices of sculptures was also perceived differently by the respondents. A large range of 90% resulted from their responses. There is therefore a strong possibility that a higher percentage increase was given by those who did not include the rate of inflation in their estimate. On the other hand, a low percentage increase may have been given by those who did consider inflation. It would seem that inflation casts a dark cloud over the employment values of the craft.

The current prices of sculptures vary between Z.$3,00 and Z.$1 500,00, depending on size and if the right market for them is found at the right time, as shown in figure 5. The mean is Z.$750,00. However, as the respondents indicated, stone sculpture sales are unpredictable. This figure of Z.$750,00 cannot be used as indicator of the capability of stone sculpture to create employment. Other factors like marketing strategies and the ability of sculptors to make themes more appealing to markets, influence the prices of sculptures. It would also appear from figure 5, that sculptors tend to make either cheaper or expensive sculptures. This could be as a result of market needs where perhaps, cheaper sculptures are produced for the local or tourist market, in what has been termed 'airport art'. Expensive sculptures could be produced by those sculptors who are skilled and are referred to as visual artists for art collectors or international galleries and exhibitions (The Economist, 1989).

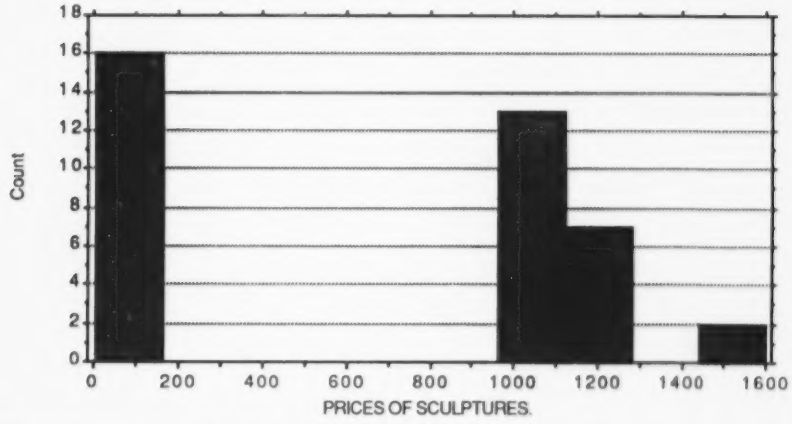

Figure 5: Current prices of sculptures

4.2.5 Costs of setting up and running workshops

Another factor which points to the questionable employment values of stone sculpture, is the fact that none of the sculptors interviewed owned private workshops. That 75% of them were employed in the formal sector of the

economy, probably indicates that no substantial incomes can be realized from sculpting. This means that sculptors carve as a means of expression and probably to supplement their incomes.

Setting up a workshop involves costs, such as basic working tools and meeting other expenses in purchasing consumables like linseed oil, wax, water paper and so on. Probably due to such unavoidable expenses, sculptors prefer to work in their backyards.

However, expenditures for the sculptors ranged between Z.$12,00 and Z.$80,00. The relationship between the profits and expenditure of sculptors is shown in figure 6.

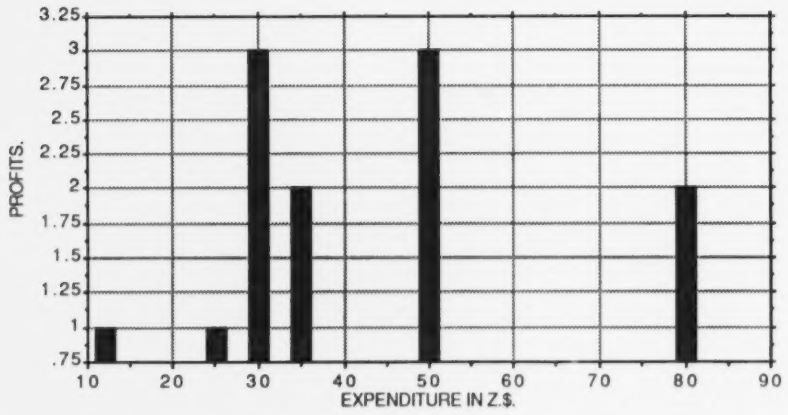

Figure 6: Expenditure and profits for sculptors.

Of the 12 sculptors who were interviewed, eight of them pointed out that they either made small profits or were uncertain of their profits. Only four said that they made sufficient profits. One can therefore say that profits for sculptors are in most cases uncertain. This is confirmed by the fact that 75% of them have other forms of employment as well.

On the other hand, four of the five organizations owned workshops. They did not however, employ full time sculptors. From their mean expenditure of Z.$785,00, the organizations managed to raise a mean profit of Z.$207,00 per month, as shown on figure 7.

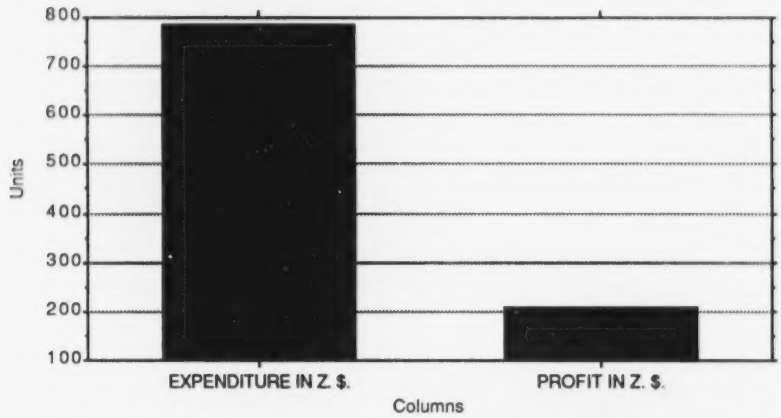

Figure 7: Expenditure and profits for sculpture marketing organizations

It would appear from this mean profit, that stone sculpture cannot create worthwhile employment opportunities in the country. A profit of Z.$207,00 is not adequate to meet all expenses involved in running workshops, such as labour and material costs, buying or replacing worn tools and paying for electricity and water bills. Probably, this was the main reason why organizations did not employ full time sculptors.

On the issue of stone sculpture being able to create employment, five of the 12 sculptors were of the opinion that the craft had in fact the capability. This however, depended on sculptors being paid fair prices for their sculptures or government being involved in controlling and promoting sales.

Based on this analysis, it is reasonable to assume that stone sculpture does not have any employment values at the moment. In fact, this opinion was held by some of the subjects of study. Perhaps, as was suggested by other sculptors, government control could create employment opportunities in the art, because from the size of markets and the prices of sculptures, it would appear that the potential is there. The promotion of sales by government could probably be given some priority, in order to ensure that those who are employed could keep their jobs. Once such a stage is reached, it would be easier then to state, categorically, that stone sculpture has potential employment opportunities for the unemployed in the country.

5. DISCUSSION

5.1 Summary

In the theoretical section of this study, the researcher infers that unemployment is affecting school leavers in Zimbabwe. The main reasons may be that job creation, mainly in the industrial sector of the economy, has not matched the massive expansion in school enrolments. The school curriculum has been designed with a flavour which is different from the cultural and economic background of the country. It seems the curriculum only prepares students for jobs in the formal sector of the economy. Their aspirations are certainly not directed towards rural work. It would therefore appear that schools have not been able to give students the necessary skills and attitudes to enable them to find or create jobs in rural areas. School leavers have therefore tended to migrate into urban centres in the hope of finding jobs. This of course swells the pressures on an already restricted job market.

The researcher would advocate that schools teach local crafts, such as stone sculpture, as an option or part of technical skills. This may orient school leavers towards rural work and rural development. The ideal situation would be to match education to the job market. Currently, it is in rural Zimbabwe that qualified people are needed. Some form of re-orientation of the education curricula is called for, if equitable development in both urban and rural areas is to be achieved.

It is worthwhile to point out at this stage that, some employment opportunities to attract school leavers have been created in rural areas. These are teaching, local authority administration work and nursing. However, this does not solve the problem of the school leaver, because the careers are filled by those who have undergone appropriate training in the fields.

In view of the above situation, the researcher therefore set out to investigate the educational worth of traditional crafts, particularly stone sculpture, in terms of its educational and employment values. The crafts at least have some relevance to the cultural background of the people in the country. They have also been creating some sort of informal employment for people in the rural areas, where artefacts have been made and sold to obtain much needed cash to buy basic essentials like food and clothes.

The study was explorative, since it would appear that nobody had yet looked into the educational and employment values of traditional crafts in Zimbabwe.

In order to obtain information relevant for the study, the researcher designed data collecting devices which were administered to the practitioners of the art. These were 5 sculpture marketing organizations and 12 sculptors, drawn from

three different centres in the country. The centres were Bulawayo, Harare and Guruve. In Guruve, a sculpture community works in a typical rural area. Documents were studied to obtain information on the history of stone carvings in the country and cultural practices connected to the craft. Documents also provided specific information such as the availability and quantity of sculpting stones (Talc) in the country.

Information relating to the educational values of stone sculpture was easiest to obtain. Probably, this was due to the fact that the researcher used interviews and observations. Also, the subjects had no reason to hide information, since the educational values of the art did not threaten their future in any way. However, problems were encountered on those issues concerning the employment value of the art.

Generally speaking, people tend to resist those issues which may affect their financial status. As it turned out, neither the sculptors nor sculpture marketing organizations responded freely to questions about the costs of setting up workshops, running expenses and profits realised from the sale of sculptures. Two organizations did not respond to these issues. On the other hand, some sculptors though initially reluctant, were finally persuaded to respond. There were of course some genuine reasons why the subjects were reluctant to answer these questions. The first was that none of the sculptors owned workshops. The second was that one organization did not purchase sculptures because it is a charity organization. What they sold was usually donated by sculptors. Naturally, this reluctance affected the results of the study, particularly on the employment values of the craft. The analysis of results, on this aspect of the study, had to be based on answers from all respondents in some cases, but in other cases only on those who had responded. An example was the case of expenses incurred in running workshops and profits realised thereafter.

The findings indicate that stone sculpture has worthwhile educational values in terms of knowledge, skills and attitudes to benefit students in an educational setting, However, its employment value is doubtful.

5.2 Interpretation of results

The theoretical framework of the study was to establish the educational worth of stone sculpture by determining its educational and employment values.

5.2.1 Educational values

By using Bloom's taxonomies for educational objectives to analyse educational values in stone sculpture, it was found that the craft could be considered as having some intrinsic attributes to benefit learners educationally. Stone

sculpture is endowed with educational values in the form of knowledge, skills and attitudes. The expected knowledge and skills from the craft do not only involve artistic skills, but also other major fields of study such as poetry, history, chemistry, design, geology, marketing and physics.

It seems we have come to accept that valuable education is that which is modelled on western industrial technology. We do not seem to realise that cultural knowledge and skills could be used to give pupils education that is relevant to their cultural background. This form of education could be a springboard or foundation for modern industrial technology.

The study of traditional skills like stone sculpture could, firstly, be regarded as a study of cultural arts. There are a few schools today in Zimbabwe, that offer art as a school subject. These few schools are mostly former group 'A' schools. A good start in art education could be made by offering stone sculpture. The results of the study indicate that the bulk of sculptures is bought by the international community. Local people do not buy the sculptures, probably because they do not appreciate the art. Perhaps, the other reason may be that art is not taught in schools, so it has no status. People therefore tend to look down upon the arts. Instead, they would rather buy machine made artefacts from abroad. Wynter-Irving (1988, p.17) supports this view when she states that *Zimbabwean art has a social and cultural role to play, yet it is unrecognised by the majority of Zimbabwean people. They are hardly aware of its existence and are unaffected by what it has to say to them. This is not because they do not want to know about it, but it is because they do not know about it.* By teaching subjects like stone sculpture, we may influence the young to grow up with an appreciation of art for art's sake. We need to teach the young to respect and cherish this national heritage.

Secondly, Zimbabwean stone sculpture could be studied as a training of students in design. Sculptors currently base their work on cultural and biblical themes. The researcher believes that it is high time for this form of creation to transcend the traditional. We would hope that formally trained individuals would extend this range.

However, design is not only a matter for the arts. It is the basis of all engineering construction. It calls for knowledge of the behaviour of materials. Arnold (1981,p.44) points out that *stone sculpture has strong tactile qualities. When the smooth, hard and cool surfaces of polished stone are touched, the experience is sensuous and adds to the understanding of the weight, solidity and volumes of materials.* Through arts and design, we can encourage creative abilities in our children in schools.

Thirdly, the knowledge of places where sculpting stones are found in the country contributes to the study of the geography of the country. The knowledge of the different types of stones and their chemical compositions is

the study of chemistry and geology. Knowledge of the behaviour of stones and their internal structure is the study of engineering materials and physics. Knowledge of markets and marketing strategies is the study of marketing. The list can go on, but the important issue here, is that knowledge and skills in stone sculpture could be the foundation for an understanding of many subjects. This understanding would prove useful to students up to university level.

Fourthly, this study established that sculpting stones in Zimbabwe, which are mainly compositions of Talc, can be put to a variety of commercial uses. The study also established that the stones are available throughout the country. One may safely say that there is an ample supply of stones. What therefore is needed, is to take advantage of these additional uses of the stones for commercial purposes. Knowledge gained by pupils in schools could be used in exploiting this natural resource to the benefit of the country.

Fifthly, it must be realised that if stone sculpture were taught in schools, the need to buy materials from abroad could be reduced. Schools could use easily available local materials instead. The types of tools used in sculpting are simple woodworking tools which are already in schools. The analysis of the employment value of stone sculpture, has shown that the cost of the stones and consumables used in sculpting is not particularly high. It is therefore reasonable to assume that sculpting stones could be used for skills training in the handling of tools when there is a shortage of, for example, wood in schools. The need to buy replacement tools from abroad would still exist, but funds which are currently used to buy both tools and materials from these sources, could be reserved for other school purposes.

Lastly, it is assumed that the study of any subject in schools fosters certain attitudes. The study of stone sculpture would be no exception. Its added advantage is that students would learn to appreciate the vast store of knowledge and expertise that traditional craftsmen have. They would recognise and respect this, rather than look down on it. Such positive attitudes may urge them to improve and innovate later on. In this way we would hope to influence them to take up income-generating projects in rural areas. The Tengenenge and Inyanga sculpture communities serve as good examples. The two communities are regarded as pioneers in rural development through sculpture. Wynter-Irving (1988, p.6) notes that *the Tengenenge sculpture community is a successful experiment in rural development which has brought about economic and social improvement in the quality of life for a large number of African sculptors, previously without opportunities.*

5.2.2 Employment values

From the analysis of research findings on the employment attributes of the craft, it is difficult to maintain that stone sculpture has the potential for creating

employment in the country. Information was inadequate. This was partly due to the fact that there was some reluctance on the part of the subjects to disclose the actual material and labour costs and the profits realised thereafter.

Considering the volume of tourists visiting the country and the number of exhibitions held internationally, it would appear that there is a thriving market for sculptures. The largest markets are international. This however, places the future of sculpting as a vocation in doubt, for two reasons. The first is that for as long as the international community is interested in Zimbabwean sculptures, there will be thriving business for sculptors. If however, fashions changed, there would be no business at all. The second reason may be that the tourist trade is to a large extent political. In addition to this, tourists are fickle. If they fear instability or if diplomatic relations changed, they could well travel elsewhere. Naturally, this would have repercussions on sculpture sales. Probably, this could have been one of the reasons why sculptors indicated that local people should be taught to appreciate and to buy sculptures.

For the past nine years, sculpture prices have shown a perceived average growth of 42%, which may be lower due to the inflation rate in the country. However without considering inflation, an indication that there has been a genuine increase in the prizes of sculptures is shown.

The biggest limitation for the analysis of the employment value of the craft, was as a result of the fact that no infra-structure exists in the form of workshops which could be used as a basis for determining the actual expenditures and profits made by individual sculptors. Even though organizations owned workshops, the profits they made are quite meagre. One cannot therefore state with certainty that the craft has a definite employment value.

Perhaps, this was the main reason why some sculptors suggested that government should control and promote sales of sculptures. In fact, the first Five Year National Development Plan, 1986 -1990, (1986 p.6) states that *In order to democratise the acquisition of artistic skills and access to the arts by the greater masses of the people, facilities for training in and presentation of visual arts will be built, improved and reorientated. .....The government will also market the finest of the work of the Zimbabwean artists.* Probably by sponsoring the arts and the artists, government could ensure that viable employment opportunities are created. At least, this may free some of the artists from their dependence on commercial galleries, for the sale of their sculptures.

There are a few individual sculptors who make substantial profits. In the Economist Magazine (1989, p.99) it is observed that *some sculptors in Zimbabwe have achieved international recognition. Works by them fetch thousands of dollars each..... and are widely displayed all over the world.* This indicates that stone sculpture cannot be dismissed out of hand, as an enterprise

without employment attributes. Wynter-Irving (1988, p.9) also states that *whatever criticism may be leveled at stone sculpture, it is one of the country's major economic assets and brings in foreign exchange that is badly needed.* Even though, the employment value of the craft is limited, these statements show that a possibility does exist, not as a sole means of income at present for the majority of artists, but may be in the future, if proper promotion strategies are instituted.

The other commercial uses of sculpting stones (Talc) is a positive finding of this study. The effects of these other uses on the employment capability of stone sculpture cannot be overlooked. It has been reported that Talc claims in Zimbabwe are extremely white and can be used for fillers in paints, toothpaste, face powder and so on (Kalbskopf, 1987). Clifton (1985) also suggests that fibre-reinforced Talc is likely to be used as a substitute for structural steel parts in motor vehicles because it is light and so conserves energy. However, he continues to say that there is a delay in the manufacture of small vehicles, where Talc could be used appropriately.

5.3 Conclusion and implications

In conclusion, it would appear that for a traditional craft, stone sculpture has invaluable educational values. However, its employment potential is questionable. In as far as this study is concerned, it could be argued that the educational worth of the craft is doubtful. Probably another study, including all factors that constitute what can be termed employment may produce different results.

This study also established that sculpting stones, which are available in large quantities in the country, could be used commercially. In Zimbabwe, the massive expansion in education means that large numbers of school leavers may not get the sort of employment they feel they are suited for. A study could establish how Talc deposits could be commercially exploited to create other forms of employment.

Considering the analysis on the educational values of stone sculpture, one could state that the craft has sufficient potential to warrant its inclusion in the curricula of schools. The craft also has direct cultural and economic relevance to the people in the country. Its study in schools could bring about a better understanding of how it could be developed into a viable income-generating activity. This could be made possible by including the study of raw materials, processes of production, finished products, markets and marketing strategies. The rationale would not be to convert pupils into experts overnight, but to broaden their general knowledge by combining theory with practice. Such a study may also be more realistic and meaningful to students, since the emphasis will be on something very tangible and close to home, rather than on remote

and hypothetical situations. One could protest that the present school curriculum is already over-subscribed. It may not be possible to include the study of stone sculpture as a separate subject, especially in view of the fact that its employment values are rather weak. It can however, be incorporated into existing subjects such as woodwork, political economy or education with production. These subjects are development and consciousness oriented. The study of a traditional craft is similar, since it would aim at developing an awareness of parent cultures and skills, and the need to maintain and improve them. A study would therefore be required to determine how this craft could be included in the schools curricula. The inclusion of the craft in the curriculum has other implications such as the provision of tutorial facilities, the content of the course, teaching materials and the training of teachers to handle the necessary instruction.

Sculpting stones are available in sufficient quantities throughout Zimbabwe, but mostly in privately-owned areas. They are of course not available on the doorstep of every school. There is therefore need to find out how the stones could be brought into those schools which may opt to teach the subject. Costs of transporting and storing the raw materials also need to be considered.

There is also a strong possibility that other traditional crafts practised in the country, contain elements which are educationally sound. Some of the crafts use fascinating designs. Baskets and mats have attractive, geometrical and multi-coloured patterns. The study of design and mathematics in schools could easily be supported by a study of these patterns, just as the study of basketry could enhance the knowledge of design and mathematics. This might lead to a creation of new designs which could be applied to modern industrial products. A study which could analyse and identify such values in traditional crafts is desirable.

The largest market for Zimbabwean stone sculptures is the international community. There is a need to stimulate local and regional markets. Studies could find out how to boost sculpture sales in these markets and so increase the employment attributes of the craft.

Generally, it can be concluded that there are a number of values which need to be exposed in traditional crafts in Zimbabwe. Additional studies may reveal these values as relevant and credible to modern society. Besides the need of preserving them as a national heritage, there could be a possibility of transforming some elements in them into a real economic asset.

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Appendix 1

NOVEMBER 1988

LINKOPING UNIVERSITY
DEPARTMENT OF EDUCATION AND PSYCHOLOGY
MA IN METALWORK EDUCATION

QUESTIONNAIRE TO THE SCULPTURE MARKETING ORGANISATIONS

This questionnaire is part of a research study aiming at determining the educational worth of stone sculpture.
The purpose of the questionnaire is to obtain information on Zimbabwean stone sculptures.

Your responses to the questionnaire will be solely used for the study.

You are kindly requested to tick where appropriate and to give your opinions where requested as accurately as possible.

Thanking you in advance for your co-operation.

Yours Sincerely,
Daniel Moyo
(Research Student)

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1) In general, most works of art are either Decorative or Utility items. Kindly name below different types of sculpting stone artefacts which are produced in Zimbabwe into the above categories, eg Giraffes are Decorative Artefacts and Chairs are Utility Artefacts.

Decorative Artefacts Utility Artefacts Any other category of Artefacts

_____

_____

_____

_____

_____

_____

2) How are selling prices of sculpting stone artefacts determined?

( ) By weight,

( ) By size (Length or Height),

( ) By quality of stone used,

( ) By quality of workmanship,

( ) By degree of difficulty in making the artefact

3) What is the most common size and weight range of sculpting stone artefacts which are produced by sculptors in Zimbabwe; eg. a Rhinoceros?

Weight	Length/Height
( ) 0.5-0.9 kg	( ) 1-50mm
( ) 1.0-1.4 kg	( ) 51-100 mm
( ) 1.5-1.9 kg	( ) 101-150mm
( ) 2.0-2.4 kg	( ) 151- 200 mm
( ) 2.5-2.9 kg	( ) 201-250 mm
( ) Over 3.0 kg	( ) Over 250 mm

4) What is the approximate selling price range of the following stone

artefacts this year (1988) eg Human Busts__ from $10.00 to $20.00

Elephant____from $_____ to $_____

Rhinoceros__ " $_____ " $_____

Giraffe_____ " $_____ " $_____

Any Other types of artefacts. Please write below.

_____from_$_____to$_____

_____"__ $_____"$_____

_____"__ $_____"$_____

_____"_ $_____"$_____

_____"__ $_____"$_____

_____"_ $_____"$_____

_____"_ $_____"$_____

5) What has been the average price increase of sculpted stone artefacts from 1979 to 1987?

( ) 1-5 %

( ) 6-10 %

( ) 11-15%

( )16-20 %

( ) 21-25 %

( ) 26-30%

( ) More than 31% Please specify.

_____

_____

_____

6) What are the market sources of stone artefacts?

( ) International tourists

( ) International exhibits

( ) Regional tourists (neighbouring countries)

( ) Local market (Zimbabwe)

7) What percentage of artefacts are roughly purchased by each of the above market sources,

International Markets	Regional Markets	Local Markets
( ) 1-5%	( ) 1-5%	( ) 1-5%
( ) 6-10%	( ) 6-10%	( ) 6-10%
( ) 11-15%	( ) 11-15%	( ) 11-15%
( ) 16-20%	( ) 16-20%	( ) 16-20%
( ) 21-25%	( ) 21-25%	( ) 21-25%
( ) 26-30%	( ) 26-30%	( ) 26-30%
( ) 31-35%	( ) 31-35%	( ) 31-35%
( ) 36-40%	( ) 36-40%	( ) 36-40%
( ) More than 40%	( ) More than 40%	( ) More than 40%

8) Approximately, how many artefacts does a sculptor make within a month?

( ) 10-15 pieces

( ) 16-20pcs

( ) 21-25pcs.

( ) 26-30pcs.

( ) 31-35pcs.

( ) 36-40pcs.

( ) 41-45pcs.

( ) 46-50 pcs.

( ) More than 50pcs

9) Out of a 1000 artefacts made by a sculptor within a month, what percentage is sold?

( ) 90% or more
( ) 85-89%
( ) 80-84%
( ) 75-79%
( ) 70-74%
( ) 65-69%
( ) 60-64%
( ) 55-59%
( ) 50-54%
( ) Less than 50%

10) What marketing strategies do you adopt to sell artefacts both locally and internationally?

( ) International exhibitions.
( ) Television and press advertisement.
( ) Use of salesman.
( ) Any other strategy. Please specify.

_____
_____
_____
_____
_____
_____

11) Where are stone artefacts sold by the Centre obtained?

( ) Bought from private sculptors.
( ) Made by sculptors employed by the Centre.
( ) Made in cottage industries.

( ) Any other source of supply, Please specify

_____

_____

_____

12) Does the Centre own,

Workshops where sculptors are employed?

( ) Yes ( ) No

Cottage Industries?

( ) Yes ( ) No

13) If the answer to the above question is 'yes' please indicate:

Number of workshops_____

Number of Cottage Industries_____

14) If the Centre owns workshops, how much money is spent per month on the following?

a. Buying raw materials including transport costs _$_____

b. Purchasing tools, machinery etc $_____

c. Paying for electricity and water bills _$_____

d. Any other expenditure _$_____

e. The approximate number of employees in one workshop _____

f. The monthly salary of one employee _$_____

THE TOTAL EXPENDITURE PER MONTH IS _$_____

15) After deducting the above unavoidable expenses, what profit is made per month in soapstone artefacts sales?

( ) 1-5%

( ) 6-10%

( ) 11-15%

( ) 16-20%

( ) 21-25%

( ) 26-30%

( ) 31-35%

( ) 36-40%

( ) Over 40%

16) In your own opinion, how can sales of stone artefacts be boosted to create more employment opportunities for the unemployed?

( ) By encouraging local people to buy more artefacts.

( ) By selling more artefacts to the international community.

( ) By creating more cottage industries.

( ) By training more sculptors.

( ) By improving the quality and range of stone artefacts

( ) Any other. Please specify.

_____

_____

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_____

17) How can the quality of stone artefacts currently made be improved to boost sales if there is a need to?

( ) By upgrading the skills of practising sculptors through training.

( ) By offering stone sculpture as a subject as a school subject.

( ) By involving sculptors in international/ regional exhibitions.

( ) Any other, please suggest below.

Appendix 2.

NOVEMBER 1988

LINKOPING UNIVERSITY
DEPARTMENT OF EDUCATION AND PSYCHOLOGY
M.A. IN METALWORK EDUCATION

QUESTIONNAIRE TO THE GEOLOGICAL SURVEYS DEPARTMENT

Dear Sir/ Madam,

This questionnaire is part of a research study aiming at determining the educational worth of Stone Sculpture.
The purpose of the questionnaire is to obtain information on Zimbabwean Stone Sculpture.
Your responses in the questionnaire will be solely used for the study.
Please tick where appropriate and give your opinions freely where necessary.

Thanking you in advance for your co-operation.

Yours Sincerely,
Daniel Moyo
(Research Student)

1) Are Sculpting Stones found in Zimbabwe a variety of the mineral Metasilicate of Magnesium ($H_2Mg_3(SiO_3)_4$)?

( ) Yes

( ) No

2) If the answer to the above question is No, could you please name the mineral and chemical composition of stones found in Zimbabwe.

_____

_____

_____

_____

3) What is the general colour of sculpting stones in Zimbabwe?

( ) Silvery- white,

( ) White,

( ) Bluish-Grey,

( ) Greenish-Grey,

( ) Any other colour, Please specify

_____

_____

4) Where are sculpting stones found in Zimbabwe? Please complete the table below by naming areas where they are found and the colour of stones found in each area. If known, please name the metal which gives them their colour. Kindly attach a map showing the areas where the stones are found in the country.

AREA	COLOUR OF STONES	METAL

5) What is the Relative Density of sculpting stones found in Zimbabwe?

( ) 1,7-2,1,

( ) 2,1-2,6,

( ) 2,7- 3,1

( ) 3,2- 3,6

6) Which other minerals or rock formations co-exist with sculpting stones?

( ) Serpentine,

( ) Iron Ore,

( ) Any other, Please specify

7) How are sculpting stones mined in the country?

( ) Deep pit mining,

( ) Shallow pit mining,

( ) Surface mining,

8) When sculpting stones fracture, how can their lattice structure be described?

( ) Uneven,

( ) Splintery,

( ) Fibrous,

( ) Even Grainy,

( ) Shell like.

9) What special precautions need to be taken to prevent them from splitting when carving ornaments?

10) How long can deposits of sculpting stones in Zimbabwe last at the current rate at which it is used?

( ) 5-10 yrs,

( ) 11-15 yrs,

( )16- 20 yrs,

( ) 21- 25 yrs,

( ) 26-30 yrs,

( ) Inexhaustible

11) Currently Talc is extensively used in making carved ornaments.
Can it be used for any other purpose?

a _____

b _____

c _____

d _____

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Appendix 3

LINKOPING UNIVERSITY.

DEPARTMENT OF EDUCATION AND PSYCHOLOGY.

STRUCTURED INTERVIEW SCHEDULE FOR SCULPTORS

1) From which places do you obtain serpentine in Zimbabwe?

2) What are the colours of serpentine you use for carving ?

3) What colours of serpentine do you prefer to use? State your reasons

4) What steps do you follow after obtaining blocks of serpentine up to the

time you are ready to carve?

5) How do you estimate the size of rough serpentine to enable you to make an artefact of a specific size?

6) What precautions do you take when breaking small pieces of serpentine from larger pieces?

7) What general tools/equipment do you use for carving?

8) What steps do you follow when finishing your artefacts?

9) In what different ways do you give a finish to your artefacts?

10) What types of artefacts do you make? State the number you make in one month.

11) How do you cost (price) your artefacts?

12) What is the size or weight of artefacts you make and their approximate selling price range this year (1986)?

13) What has been the the average price increase of serpentine artefacts over the years 1979 to 1987?

14) Do you make your artefacts on orders from customers or do you make to sell to the public in general?

15) What strategies do you adopt to sell your artefacts?

16) What are the market sources of your artefacts?

17) What proportion of your artefacts are bought by each of the above market sources?

18) Out of 100% artefacts you make within a month, what percentage do you sell?

19) Do you own a workshop? If so, how much money do you spend on the following?

a)buying raw materials $_____

b)purchasing tools, machinery, etc $_____

c) paying for electricity and water bills, $_____

d) any other expenditure, $_____

e) number of employees and salaries, $_____

20) Is the profit you make a month on serpentine artefact sales substantial?

_____

_____

_____

_____

_____

_____

21) In your own opinion, what steps do you think should be taken to,

a. boost sales of serpentine artefacts?

_____

_____

_____

_____

_____

_____

_____

_____

b.improve the quality of serpentine artefacts?

_____

_____

_____

_____

c create employment opportunities to the unemployed"

Appendix 4.

NOVEMBER 1986.

LINKOPING UNIVERSITY.
DEPARTMENT OF EDUCATION AND PSYCHOLOGY.

OBSERVATION SCHEDULE FOR SCULPTORS.

SKILLS TO BE OBSERVED.

NAME OF ARTEFACT BEING MADE _____ SCULPTOR NO._____

STAGE	ACTIVITY	TOOLS USED
1) PREPARATION	PAPERWORK. Choice of subject matter (Inspiration) a Design brief. b Design sketches. c Final design. d Design specifications.	
2) PREPARATION	CHOICE OF WORKPIECE a Cutting workable pieces. b Selection of appropriate workpiece.	
3) CARVING	BLOCKING OUT SCULPTURE	

	a.Preparation of working surfaces. b.Preparation of tools. c.Treatment of stone. d.Selection of stone size. e.Shaping sculpture (size and details).	
4) FINISHING	FINISHING SCULPTURE a.Choice of finish texture. b.Finishing procedure. c.Treatment to final finish. d.Display artefact.	

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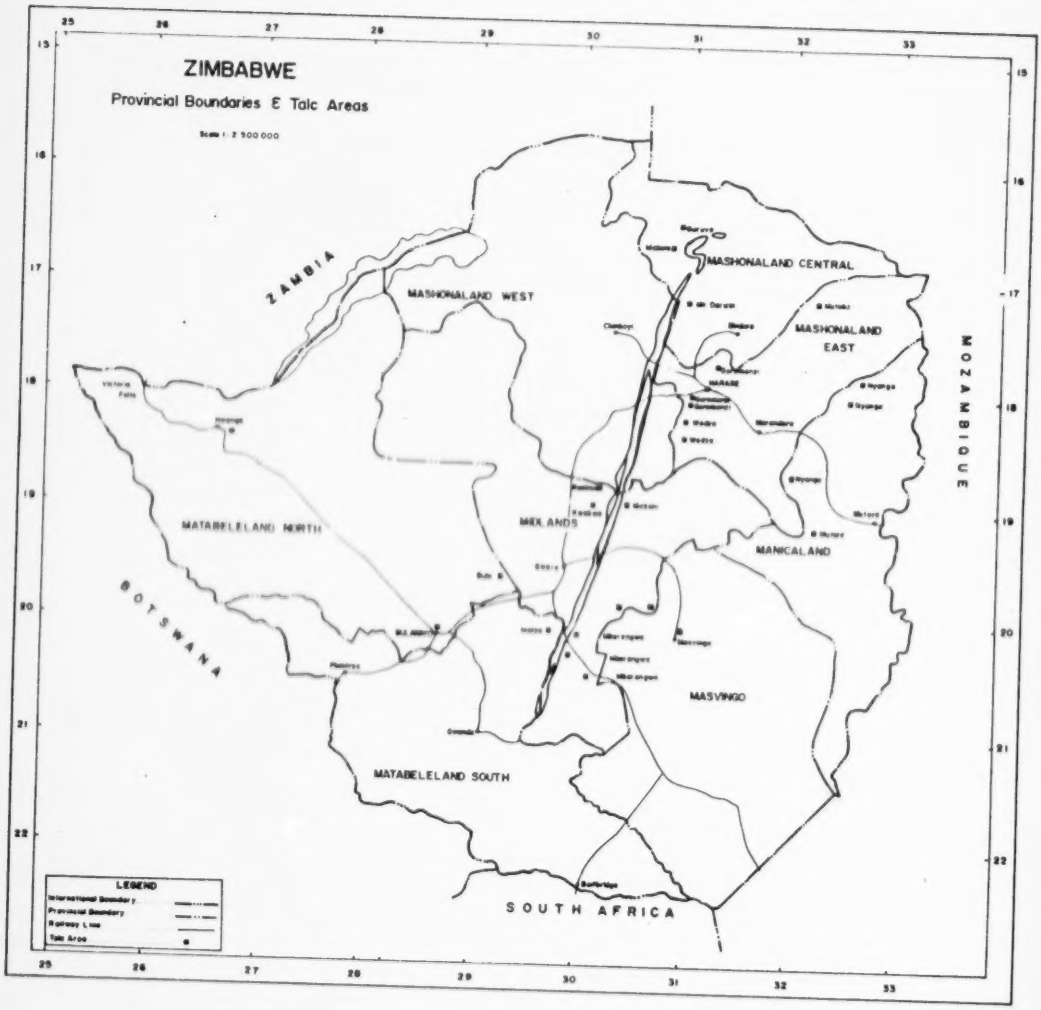
Appendix 5



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